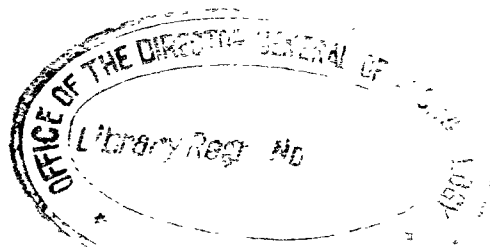


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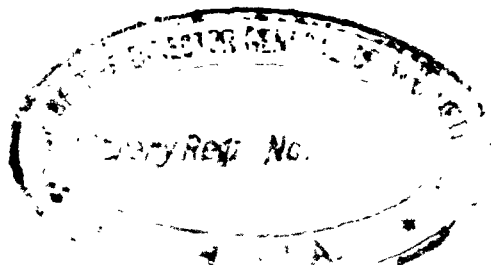
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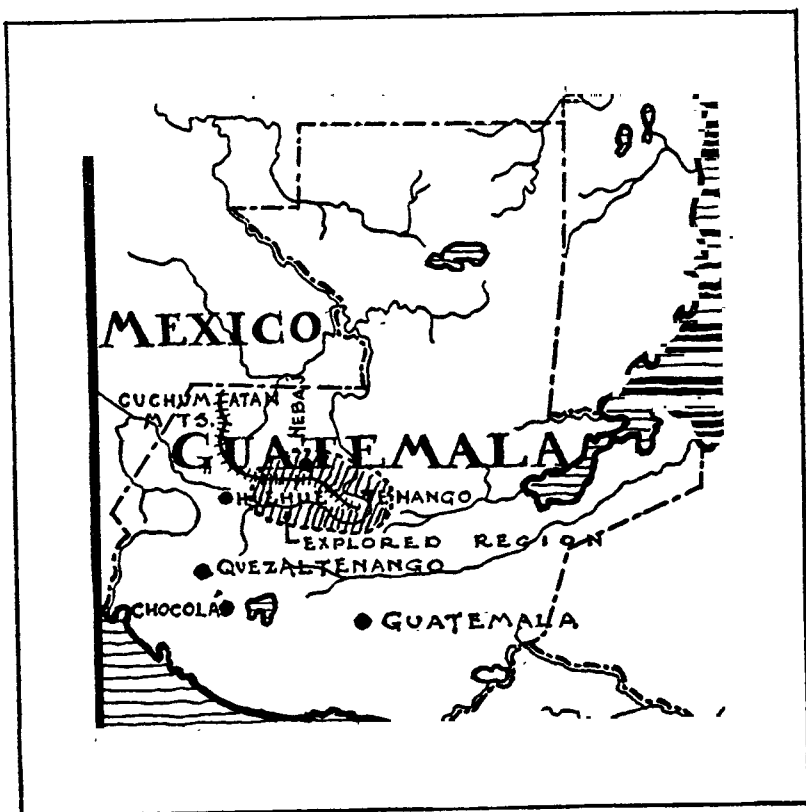
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EXCAVATIONS AT CHCOLÁ

By ROBERT BURKITT

CHCOLÁ is a big coffee, sugar, and cattle estate, watered by a stream of the same name; and belongs geographically to what is called the Pacific slope: this is to say, it belongs to that strip of country, twenty or thirty leagues wide, which lies between the volcanoes and the sea. Chcolá is in the upper and cooler regions of the slope. The mountains are close above you, and the sea appears as a white streak on the horizon. But the mountains are often in the clouds; and both the sea, and the wide intervening hot-country below you, are usually very much lost in the haze. The actual slope of the ground, in the Chcolá neighbourhood, is a steady easy slope, on the average about six in a hundred. Looking to the northwest, the big mountain in front is the volcano of Zunil. A little to the left, over the shoulder of Zunil, you can see the peak of another, and higher volcano, the volcano of Santa Maria which did so much damage twenty years ago. The face of the country has the general appearance of a waving sheet of bush, with patches of cultivation. But the apparent sheet is in fact very much broken by deep gullies and ravines that you don't see till you get to them.

The country is fertile and well watered, and the climate pleasant. The people are mainly—and have been since time out of mind—Indians of the Nawalá and Ixtawacán tribes (Creole spelling: Nahualá, or Nagualá; and Ixtahuacan), Indians whose headquarters are the villages of those names, in the cold country behind the volcanoes. Their language is a Maya language, a dialect of Kichechí. The owner of Chcolá is a company in Hamburg.

The most conspicuous ancient remains in Chcolá are certain mounds which have long been objects of speculation, and to the Indians are objects of superstition. Those mounds, and the kind permission of the manager of Chcolá to examine them, were the chief cause of my stay.

The mounds, which may be about a dozen in all, are gathered together, in sight of each other, in that small part of the estate that I send you a map of (Plate I). The mounds are marked on the map with the letters A, B, C, and so on. A couple that have no letters are perhaps not artificial; and probably there are some small artificial mounds not marked at all. Looking at the mounds as a whole, you see that they are strung out in a general northerly and southerly direction, which is more or less the general direction of the slope of the ground. There is no visible systematic arrangement among the mounds. The tops of B, C, and D are very nearly, if not quite, in a straight line, but that may be mere chance. The biggest mounds, which are each about forty feet high, are B, C, D, and J. H is not quite so high and the others are comparatively low.

Figure 1 is a view of Mound B, taken from the top of Mound C. In the foreground, on this side of the hedge, you may see some cattle. Mound A, beyond

the hedge, is in a meadow. The distance is cut off by the haze. Figure 2 is a view of Mound C and Mound D. On the left, Mound C; on the right, diminished by perspective, Mound D. You are standing in the meadow of Mound B, a little east of that Mound. Beyond the meadow is the hedge that you saw in Figure 1.

The Chocolá mounds, big and little, seem to be all made of earth. You walk over them, and the surface is smooth, no sign anywhere of the usual stone steps. And when you dig in, you still find only earth. The Nebaj mounds are also, to all appearances, made of earth. And in their case there seems to be a plain reason: stone is very scarce in Nebaj. But that cannot have been the reason in Chocolá, where loose stone abounds in every gully and water course.

Another and much more remarkable character of the Chocolá mounds is their shape. They are not of the usual square, or oblong shape. There are no straight lines or corners to be seen in them. They are all round. And it is not that the corners can have been worn away. It is not a consequence of the mounds being made of earth. The Nebaj mounds, which are made of earth, are the usual rectangular pyramids, and there are distinct sides and shoulders. There are none in the Chocolá mounds. The Chocolá mounds are round, and I have no doubt, have been from the beginning.

And that fact of the mounds being round was my great stumbling block. I made no doubt, and I make no doubt now, that at least all the bigger mounds are grave mounds, and the contents of the graves would, no doubt, be of much interest. But where should those graves be looked for? The ordinary Guatemala burial mound is an oblong mound, with the principal burial, not in the middle of the mound, but somewhere on that middle line which is at right angles to the face of the mound. But I look at the Chocolá mounds, and I see no face. They give me nothing to go by. I wish to open a trench towards the middle of the mound, starting from somewhere outside. But which of the thirty-two points of the compass shall I start from? The mounds are too big for random experiments.

I determined to experiment, though not quite at random, with one of the smallest mounds, and then, if I had any success, to apply my new knowledge to one of the big mounds. The small mound might perhaps not be a burial mound; but it might contain some chamber, or some piece of stone work which would tell me how that mound, and probably the other mounds, faced, or I should get some other useful knowledge. But I got none.

I chose for my experiment the Mound A, and for the direction of my trench I chose the east. In my experience, mounds more often face east than in any other particular direction; and in the case of some of the Chocolá mounds, the lay of the ground somewhat favoured the idea of an eastern facing.

Figure 3 shows you the low Mound A, with the trench dug. The trench is due east and west, and you are looking west. The mound, which is about fifty metres in diameter, and between three and four metres high, stands in the middle of a flat. I have had the tall grass and scrub partly cleared off. On the right hand side, at two different levels, you see my dumps. The upper dump is simply on the side of the mound. The trench was first opened at that level. It is now at the lower level, and the dump is along the flat. The ground sinks a little, to

the right, but so little that the dump advances very fast, and the wheelbarrows have to travel a good distance.

Figure 5 is a view in the opposite direction. You are in the trench and looking east. The boards are for the wheelbarrows. The man with the barrow is turning out towards the dump. The mountain peak far off is the volcano of Atitlán.

I carried the trench in a little further than the middle of the mound. The artificial nature of the mound was continually shown by bits of pottery or arrow heads in the earth, but by nothing else. No stonework was met with, nor any structure.

In Figure 3 you see before you a little piece of road. You can't follow the road with your eye past the middle of the picture, but it goes off round the left of the mound. In Figure 4 you see the same mound and the same trench, from nearly the same point of view, but you are a little to the right of where you were and on the left of the picture you now see the continuation of the road. The road, in the course of time has come to be a little sunk below the level of the flat, and a few steps beyond the point you see the bed of the road runs over what is evidently an artificial line of stones. The line of stones crosses the road, and heads very nearly in the direction of the middle of the mound. The line of stones, as I found by digging, doesn't reach the mound, nor near it. The stones come to an end in the flat, only a few steps from the road. But I had noticed those stones from the beginning, and of course it had crossed my mind that they might have been the work of those who built the mounds; and in that case might indicate the orientation of the mounds, or at least of the neighbouring Mound A. The mound might be found to face in the direction of that line of stones, or at right angles to it. And now that my trench on the east was a failure, I ran a new trench about twenty-seven degrees southeast which was the bearing of the line of stone work. And in Figure 4 you see that new trench, or you see the top line of it, to the left of the first trench, the two trenches meeting in the middle of the mound.

In the far end of the first trench, you can make out that there are steps going up to the surface. As the digging advanced, the working face of my trenches was usually not vertical, but took a stair shape, and the whole stair travelled forward. The left hand side of the mound where the horse is, is now disfigured by a small dump.

In Figure 6 you see the same two trenches, but you are now in front of the second trench, and the first trench is on the right. The road crossing the picture is the same road as before, and on the far side of it you see the little trench I made in getting to the end of the line of stones. The stairs you see in the mound are the same stairs as before, the stairs where the first trench left off.

They are beyond the middle of the mound. The middle of the mound, the point where the middle lines of the two trenches intersect, would be about where you see the upper part of a man. The man is in a pit. At the middle of the mound I expanded the junction of the trenches into a wide excavation which you don't see, though you may be able to guess at it, and carried the excavation down into old ground, a couple of metres below the level of the trenches, so that

the two trenches now about on a pit. The man you see part of is in that pit, the other man is standing on the brink.

Figure 7 shows a stairway going down into a corner of the pit. The pit goes off to the right. The camera is very much turned down, and everything is out of proportion.

The second trench, and the central excavation, and the pit, gave just the same result as the first trench, that is to say, nothing. I had found neither grave, nor stone work, nor any indication that would be much help to me in attempting the bigger mounds, and much to my regret, I decided that for the time being, at least, I had better not attempt them.

I made some examinations of the big Mounds B, C, and D. I measured them. The resulting profiles appear in Plates III, IV and V. The two profiles of each mound intersect in the top of the mound, and in all three mounds the two profiles are taken in the same two directions. One direction is that of the straight line in which, as I have told you, those three mounds happen to lie. This direction is about four degrees west of true north, or east of true north. The other direction of the profiles is at right angles to that, and consequently about four degrees north of true east, or south of true west.

I made these profiles, originally, not to send to the Museum, but in order to find out where the middle of the mounds might be. I couldn't tell by looking at them; they were too big. But I now send you these profiles, because they show something else. I had had a suspicion that at least Mound C was not quite circular, that it was wider north and south than east and west. And the profiles show that that is the fact, and not only with Mound C, but with all three mounds.

You don't easily see it by looking at the mere straddle of the profiles at the bottom. It is not easy to say just where the bottom is, especially in the case of D, which stands on a very sloping ground. But you see the fact plainly in looking at the peak. On each of the three sheets you see that in the upper profile, which is the northerly and southerly profile, the peak is blunter and wider than in the lower. The difference is not enough to catch the eye in walking round the mounds, but you see on paper that the difference exists, and the amount of it is about the same in all three mounds.

And that fact of the length of the mounds being about north and south suggests of course that they face about either east or west, and east would be more likely. With so much uncertainty about where to dig, it may be that nobody will ever care to dig, and the secret of the mounds will never be known. But in case of attempting them, I should begin with the supposition that if they faced anywhere, they faced about east.

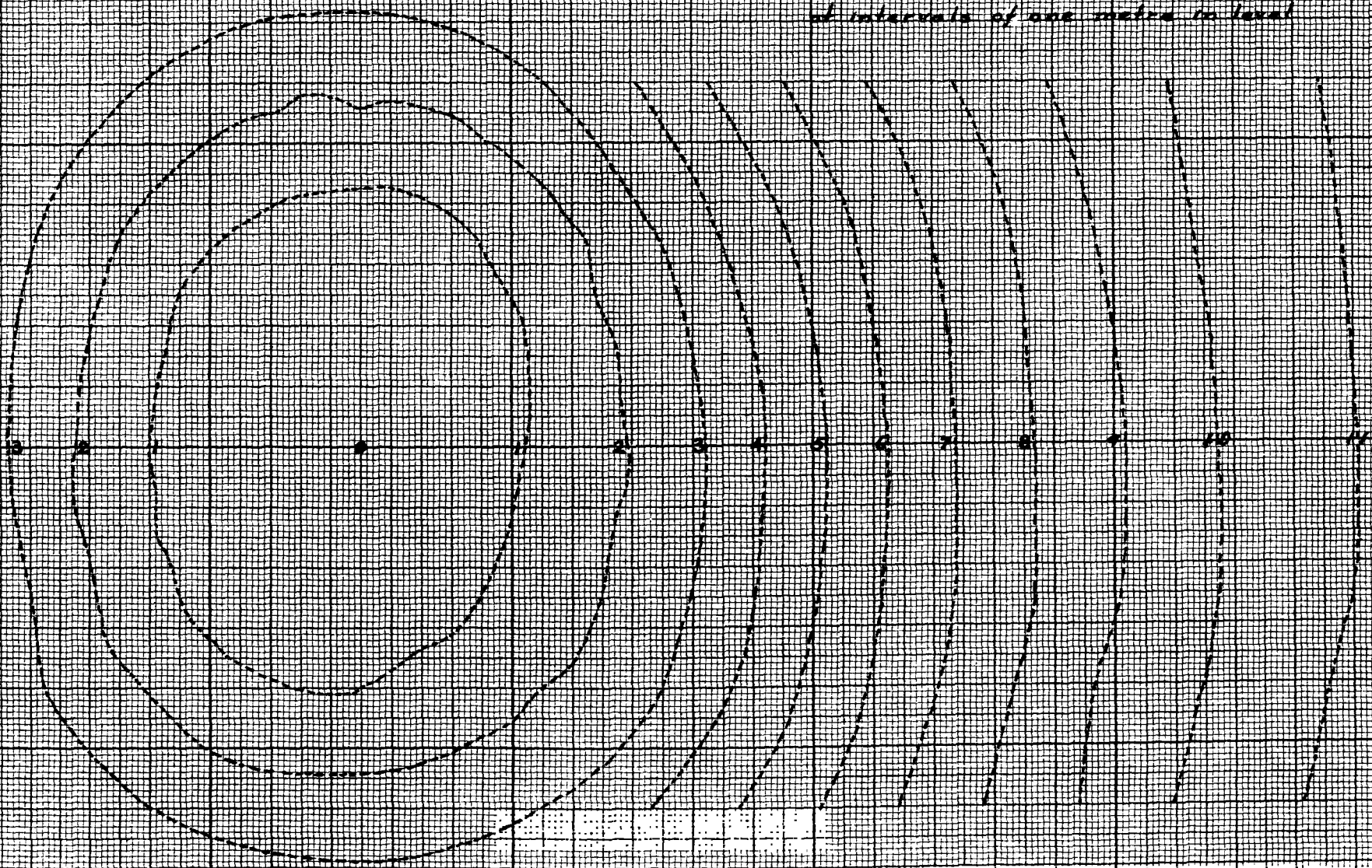
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Leaving Quezaltenango towards the end of November, 1926, I came down to the Pacific slope, and to Chicolá, and in Chicolá I was able to begin at once on one of the big mounds. The mound that I have taken is the one that on the map of Chicolá (Plate I) is marked B.

The digging when finished, if it is finished according to my present intentions, will be a trench from the east side, to the middle of the mound—or a little

CHOCOLÁ, Mound B

Contours about the top
and down part of the east side
at intervals of one metre in level



The fourth metre contour (not shown) is about 5 metres
beyond the contour of elevation, and may be on natural ground

beyond the middle, the bottom of the trench to be about two metres below the level of the surrounding ground. To make sure of not missing anything like a central burial, the trench, at the bottom, will be four metres wide. The sides of course will slope outwards and upwards. And making the slope as steep as it can safely be, it appears from measurements that the sides of the trench or pit, round the highest part, will run out from the surface of the mound at about three metres below the top. The digging, consequently, falls into two parts, the first part being to cut off the whole top of the mound to the depth of three metres. Then comes the second part, in which the digging takes the shape of a pit, or a trench, tapering to the bottom.

The first part of the job, that of taking off the top of the mound—about eight hundred cubic metres of digging—is now done. You can follow the progress of that digging in Figures 8 to 13, which are numbered in the order of time. They are all taken from nearly one point, the only convenient point of view there was, which was on a rising ground to the northeast of the mound.

The digging went ahead on all sides, but of course in the figures you see only the north and east sides. On the right hand side you see the mound disfigured by a dump. There were two equal dumps, one on the southwest quarter and one on the northwest; and you see the one on the northwest. Figure 14, showing some men at work, is taken from that dump.

Such digging as this, of course, I gave out by task, the cubic contents of this or that section being found in the usual way, by surveying the surface. Consequently, in the parts to be dug at, I know the precise contours of the mound and in Plate II you see what those contours are. The three metre contour is of course the present edge of the top of the mound. The steepest part of the mound is yet to come, the part between contours three and seven. And you see now plainly the lie of the ground. The one metre contour, you might say is shapeless. But in the two metre contour and still better in the three metre, you now see plainly, not merely what you saw before by my profiles, that is, that north and south in the mound is longer than east and west—but that about north and south is longer, and about east and west shorter, than any other directions whatever, and are practically the axes of the mound. That lay-out of the mound, of course, does not prove that the mound contains or covers a burial. I suppose the most distinct probability of that lies in the fact of the total absence, in this neighbourhood, of the usual small burial mounds, or of any other sign of burial at all. But the lay-out is decisive in its suggestion—especially in coincidence with the similar lay-outs of Mounds C and D—the suggestion that east and west is the proper direction to try trenching. I might add that the only thing resembling structure so far found in the digging, was a pile of stones about a cubic metre in size, apparently a guide-pile, in the middle of the east side.

Both this time and last I have dug in Chicolá only at times of the year when digging in the north would be impossible. The northern dry season leaves nothing in the shape of a pit, or anything that might cave in or be damaged by rain, and can be taken up again later.

January 22, 1913.

My occupation since the last writing has been the one monotony of digging. The digging consists, as you know, in driving a big trench into Mound B. The trench, as had been decided, should go into the mound on the east side and measures, or is to measure finally, between extremes, about eighty feet wide, forty feet deep, and a hundred and fifty feet long and is now about three quarters done.

The first stage of the digging took the shape of cutting off the whole top of the mound to a level of three metres below the top point (Figures 8 to 14). The subsequent and much greater part of the work which I took up in July and am still engaged in, is the trench proper and Figures 15 to 24 have to do with that part.

Figures 15 to 18 are taken from near the same northeasterly point of sight that I made use of before in taking the photographs shown in Figures 8 to 13 and are numbered in the order of time. Looking at the mound in these pictures the level top that you see is the new top, the top left after the original top was cut off. And on the left hand side of the mound which of course is the east side, you see the mouth of the trench.

In Figure 15 the advancing trench is at the level of three metres below the new top, six metres below the old top. The road that you see cut round the side of the mound at that level is the road to one of the dumps. As before, there are two dumps, a northwesterly and a southwesterly; of which as before, only one, the northwesterly one (here on the right hand side of the mound), is in sight. The line marked by the foot of that dump—I mean the foot that runs down the slope—is very nearly on the north and south line through the middle of the mound.

In Figure 16 the trench at the three metre level is so far in that the working face is out of sight, and work has been started on the new level, the nine metre level, three metres below the last, and nine metres below the original top.

In Figures 16 to 18 you follow the progress of the nine metre digging. There is now a lower dump for this level. This dump has so little height that it quickly extends and makes a long run for the wheelbarrows. Of course the dumps, whether upper or lower, might have been brought nearer to the mouth of the trench but I didn't wish to encumber, more than might be unavoidable, any part of the eastern half of the mound. In Figure 18 the working face of the trench is again out of sight.

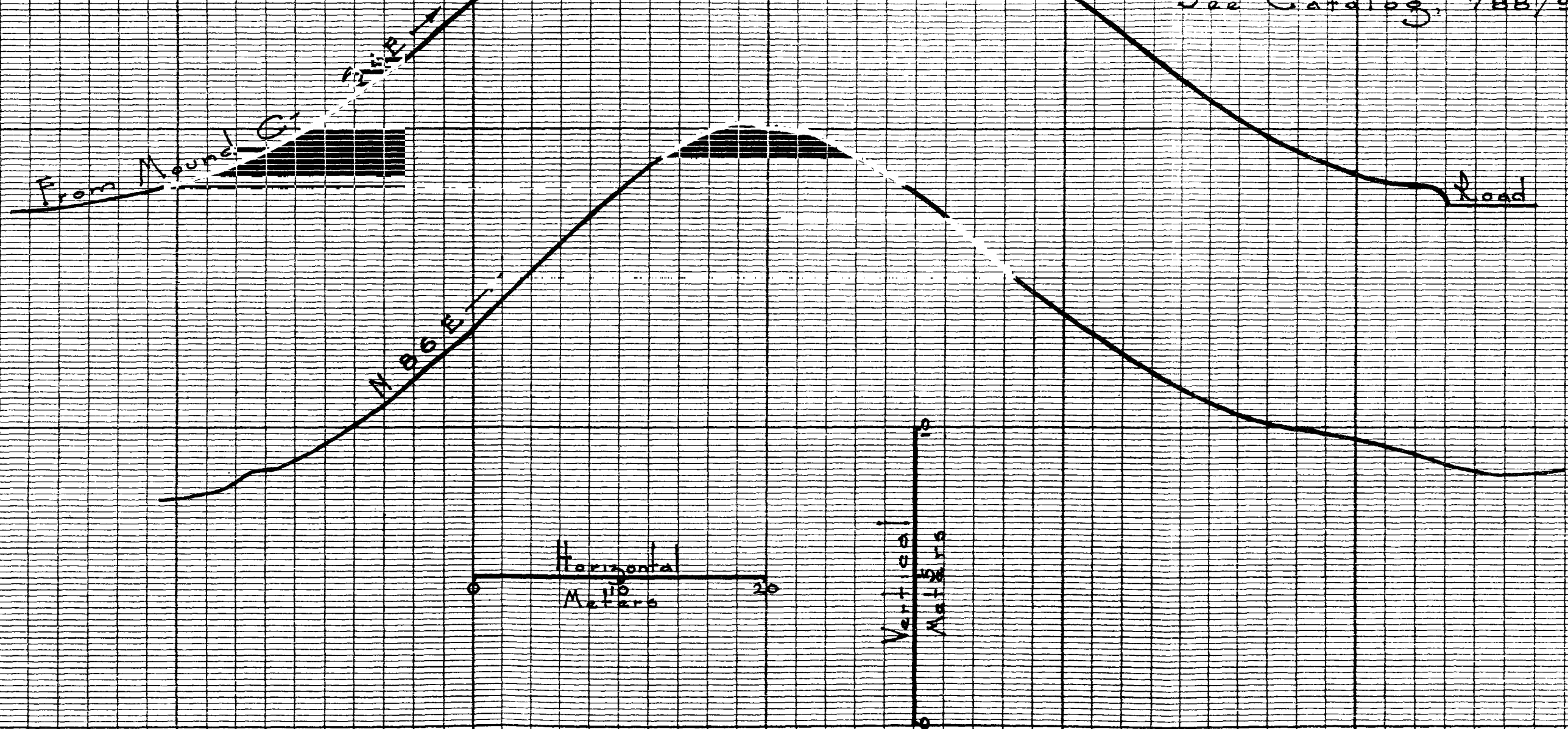
Figures 19 and 20 are views of the mound and work, taken from further off, and from another direction. You stand on top of Mound C, and look about south. The top of the mound is already cut off. And in the new top you see the top of the trench, or so much of it as the bush doesn't hide; and you see how far in the top of the trench goes—almost to the western brow of the mound.

The first of these pictures, Figure 19, is nearly contemporary with Figure 16 above, except that the road to the bottom dump is ready. Digging (as you can see by the men) is still at the upper level. You notice that from this point of sight you see not only the near dump that you saw before, but also the extremity of the far dump. You can make out a man there who seems to be emptying his barrow.

CHOCOLÁ

CROSS PROFILES OF MOUND "B"

See Catalog, 788/9



At the right hand foot of the mound you see the small hut that I put up as a tool house, and for a shelter during showers. The path that goes down from the near dump is the path to that hut. Just above the near dump and in fact surrounded by it, you can still make out the bulge of the old dump, the dump that received—or one of the two that received—the original top of the mound. But the old dumps are already much covered with bush.

In Figure 20, which is nearly contemporary with Figure 18, the new dump had spread out like a fan. And looking beyond the tool house, you now see the tip of the companion dump on the far side of the mound.

The photographs in Figures 21 to 24 will give you a notion of the digging at close quarters. In Figure 21 you stand at the northern end of the top of the mound and look about south. You look across the width of the trench. The bare flat place on top with stakes in it, and with a fringe of bush, is the three metre level, the new top of the mound, nearly the whole width of which top the trench is now cutting away. The trench is traveling from left to right. On the far side, in the shadow, you see how the side of the trench comes down in shelves. Each shelf is a metre wide and a metre high. At the bottom, at the furthest left, is the floor of the trench, then at the six metre level. The work on the digging face is also conducted by shelves. The man near you with a pick axe, and the man further off (probably also with a pick), stand on a shelf of their own digging, a metre below the flat top, and will keep digging along that shelf till the block between them is gone. The earth is let fall to where you see it, that is, to the shelf below from which the dump men, as you see in the far corner, pull the earth into their barrows. In the corner below you, out of sight, other men are doing the same thing.

In Figure 22, you again look across the trench, but look north. The mountains are completely hidden by clouds. The hill is Mound C, of which the apparent apex, however, is in fact the apex of Mound D, beyond. On the floor of the trench, work is going on in two corners, of which you see one. The floor is still, as in the last picture, at the six metre level.

In Figure 23, the trench has been lowered to nine metres and the view, which is southeasterly, is partly like an enlargement of that which you saw further off in Figure 17. You see the trench as it enters the side of the mound. You stand on the six metre floor and can see at the left hand bottom corner of the picture a little of the floor of nine metres. The active part of the trench is, of course, between the two floors; but excepting for the two top men that you can see, the activity is all hidden.

Figure 24 is a view, nearly in the opposite direction. You stand now on the nine metre floor, in that part of it that you could just see in the last picture and look about northwest. The gap in the side of the mound is where the road to the dump went out, when the trench was at that level. It may strike you, in this picture that the side shelves and the floor of the trench seem to rise a little as they go away, and in fact they do, the trench having a slight slope for drainage.

So much for the pictures. The mound so far has been practically all earth. The artificial nature of the mound is constantly brought to mind by the turning up of some potsherd, or piece of obsidian, or bead. But there has been nothing

so far worth mentioning, of a structural nature, excepting perhaps some stones here and there, so situated that they might have been guide stones in building, and also excepting (what has just lately come to light) an extensive layer of ashes, with occasional charcoal. The digging struck that layer just on top of my nine metre floor where these ashes were found to cover a patch as much as twenty feet in diameter, about the middle of the mound. The thickness of the ashes was in most parts one or two hands breadths above the floor. But the layer of ashes, or table of ashes, disappears into the floor and the total thickness is yet to be seen.

As I write, I've just come to the end of the nine metre digging, and digging at a lower level is about to be opened. If the mound is anything like others that I've dug, I shouldn't expect now—not having found any burial between the three and six metre levels, where the mound was steepest—I should hardly now expect to find any burial (supposing burials to be present) till somewhat below the level of the natural ground. However that may be, my intention is to keep on now without stopping till the whole projected digging is done, which, all things considered, will likely not be much, if at all, before the end of March.

April 1.

I go back to my letter of January twenty-second. I said that I had then finished what I called the nine metre digging, the digging by which the trench was deepened to a level of nine metres below the original top of the mound or six metres below the new top.

Figure 25 which I now send—it was not then printed—shows the last moments of that digging. The floor is the same floor as in the preceding Figure 24, as you may see by counting the shelves from the floor up, which in each case is six. But you stand higher than in Figure 24 and the digging face, three shelves high, has been carried to its termination. As soon as the top men finished clearing the shelf they stand on, the nine metre digging was done.

When it was done, the digging returned to the mouth end, or east end, of the trench. The floor was again lowered and Figures 26 and 27 (in both of which you look due west) are views of the work at the new level. The lowering this time, as you may notice, was not three metres, but two, so that the new floor was eleven metres below the original top.

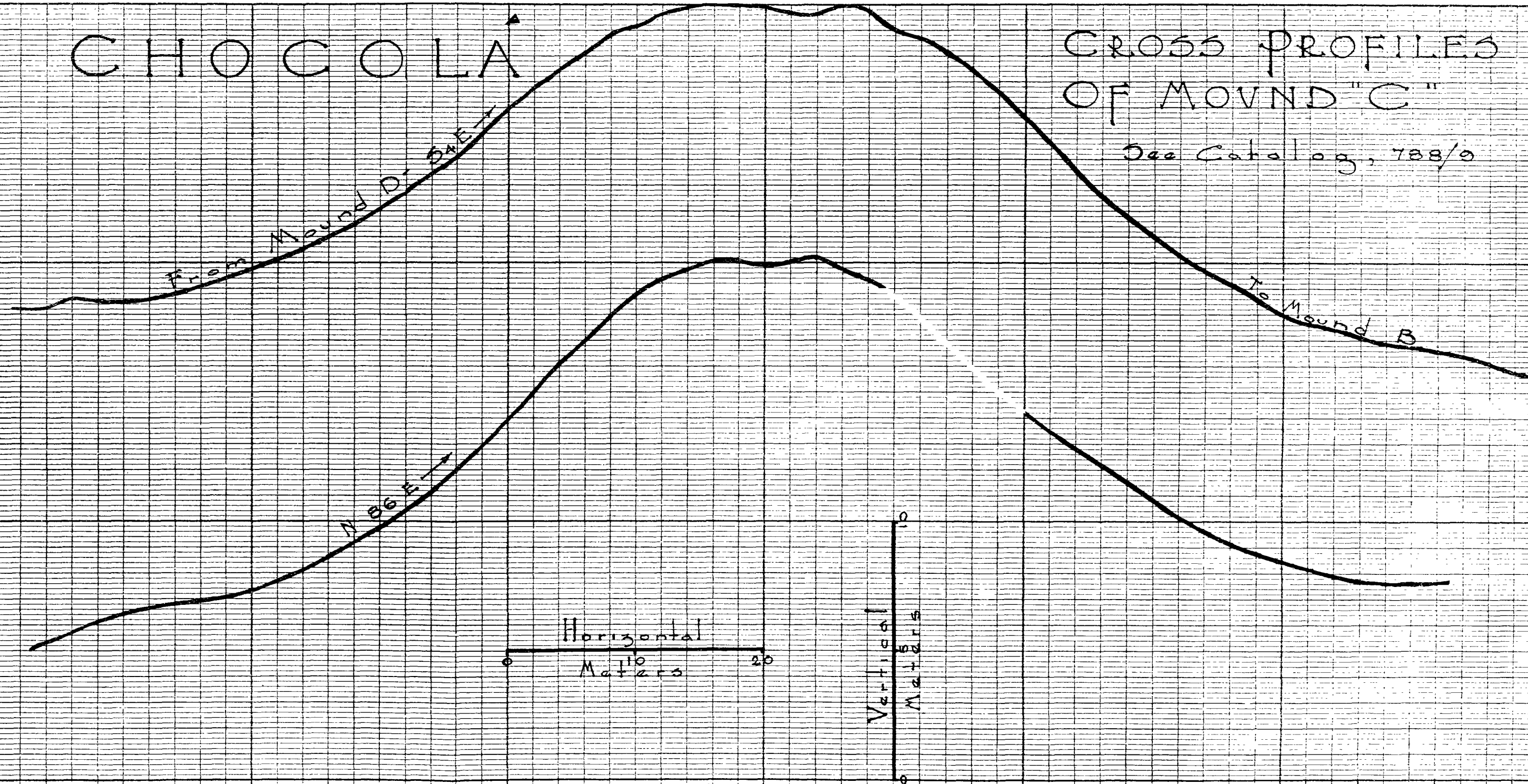
The next, and what is so far my last, lowering of the floor, was to a depth of another two metres, making that the thirteen metre digging, and Figures 28 to 30 show stages of that digging. In Figure 28 the point reached by the advancing floor is nineteen metres east of the centre of the mound. In Figure 29 it is three metres east of the centre. In Figure 30 it is three metres west, and the thirteen metre digging is finished.

The appearance of the wall, that you may notice, on some side shelves is merely my mending of places where the shelves had given away. The maintenance of the side shelves was a matter of consequence in the drainage. And in the last photograph, the inclined planes that you see dug in the side shelves were merely to get up and down by.

CHOCOLA

CROSS PROFILES OF MOUND "C"

See Catalog, 788/9



July.

When I wrote you on the first of April, the completion of that thirteen metre digging was the stage that I had just about reached. And it was the stage that, writing in January, I had supposed might bring me to the bottom of the mound and the end of the job. Looking at the Mound B profiles that are shown in Plate II, you see that at thirteen metres below the top I must be at the level, or even below the level of the lowest outside surface anywhere immediate to the mound, and that I might have hoped to be down to natural ground.

It turned out that I was not. At the circumference of the mound, that is to say at the mouth of the trench, it appeared for a little that on the level of my thirteen metre floor I was down to natural ground. But a short distance in, on that level (to be precise, at about 28 metres east of the centre), I began again to find potsherds. And still further in, it turned out that not only was I not down to natural ground, I was not even at the bottom of the ashes, those ashes that in my letter of January I had spoken of having lately encountered.

The ashes had appeared at that time as an irregular patch about the middle of the mound, emerging from the nine metre floor. I remarked that the thickness of the ashes remained to be seen. And now in April, it still remained to be seen. The thickness of ashes had continued from the nine metre floor down to the eleven metre floor, and now again to the thirteen metre floor, and still went down.

In the advancing vertical sections of the digging, the thickness of ashes was seen to be interspersed irregularly with layers and pockets of other stuff, sometimes sand, sometimes earth, sometimes clay, and most remarkably, sometimes leaves, the leaves being in thin patches, or sheets, and though caked together with the pressure, and rotten, still showing their green colour. Everybody spoke of them as green.

The ashes—as they were denominated on first sight, by whoever inspected them—the ashes themselves, when not dried to the colour of dust, seemed to be predominantly of a bluish, or blackish colour. The digging, at a little distance, had the appearance of a coal mine. And when fresh it stank. It stank like a freshly opened ash heap, or heap of garbage and ashes.

But though the bottom of the ashes was not yet in sight, the bottom, and the natural ground, could not really be far away. And to get down the remaining distance was the short stage further that, writing in April, I hoped that the weather would still allow me to reach. It didn't allow me. The day I wrote you was Palm Sunday. Then came the interruption of work by Holy Week and then came the rain. Not that the mere daily or nightly showers of April would in themselves have much mattered, the thing was, that in getting down as I had done to my thirteen metre level I had got to the limit of drainage.

Let me say that, ever since the end of the nine metre digging, I had done no dumping of earth on the sides or skirts of the mound. I was too low. There was no depth left, in that neighbourhood, for dumping, and my new dump was a gully, a gully that you may see the situation of, in the general map of Chicolá. The water course there marked a little east of the mound, may be taken to indicate the gully.

Figure 31, which is from the same point of view as Figures 15 to 18, was a little after the start of the eleven metre digging. The two long dumps on the right are the old six and nine metre dumps. The new dump, at the gully, is a long way to the left, and not in the picture. But the two men that you see near the end of the trench, are wheelbarrow men, and are traveling on the road that leads to the new dump. You don't see the road itself, nor the men's feet, because coming from the new floor, the eleven metre floor, the road was for some distance a sunken road. Out to as far as the line of bush, the road was itself a trench; a narrow branch of the main trench; and the drainage of the main trench was by that branch.

In Figure 32 you stand in that sunken road, but the road is still more sunk. The floor of the main trench is now the thirteen metre floor, and the road sinks to meet it. Coming out from that floor, the road now slightly rises. The near barrow man, that you see coming, is coming a little up hill.

But there is still a remnant of drainage. The far barrow, just turning out of the trench into the road, is at the lowest point of the work; and along the side of the road, from that point, though you hardly notice it, there is a shallow drain. The drain of course doesn't come up hill with the road, but it has now absolutely no fall; it is level. And the water of the trench was carried by that level drain to the lowest existing outlet. The lowest existing outlet was on a level with the thirteen metre floor.

So for any further lowering of the work there was now no natural drainage. And to lower the existing outlet to the gully would have been a great deal of trouble. But it happened I had been able to borrow a traveling pump. My plan was to pump out in the morning whatever water had gathered in the evening or night, and then go on digging. The days were still mostly fine. And I began by a new sinking of the road. But I had not got to an end with the road when the new digging struck a strong current of water—water coming through the earth, no doubt from the rain soaked hollow that there was on the north and east of the mound. The soaking water followed the diggers down. The pump was useless. The digging became a mud hole, and I stopped the work. The work would have to wait till some such time as Christmas, when all difficulties of drainage would be removed by the drought.

The trench remains in the stage in which it is seen in Figure 30. I put the existing drainage in as good order as might be, to withstand the rains, making arrangement for an occasional caretaker, and also planted quick-growing hedges, to be a help in screening the work from observation. And in the last days of April I left for Guatemala City.

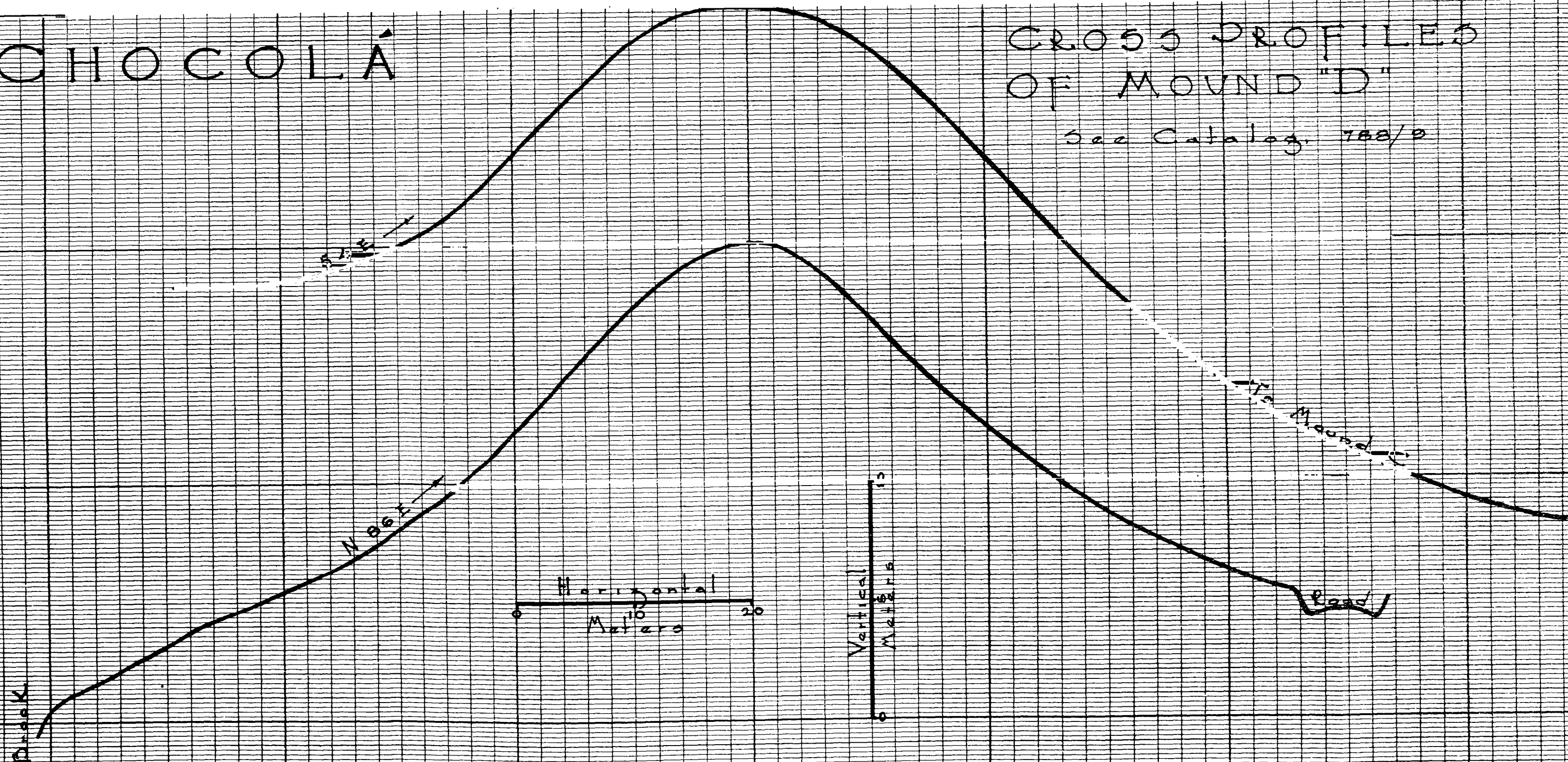
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The drawings reproduced in Plate VI show the digging of Mound B finished. You know that the digging was of the nature of a trench, a trench running into the mound from the east side to the centre and narrowing as it went down. The top width of the trench was various, depending on the surface of the mound. You see in the lower drawing that the bottom width, except at the centre of the mound, was four metres. At the centre of the mound the four metres was

CHOCOLÁ

CROSS PROFILES OF MOUND "D"

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expanded to six, giving three metres clear at the centre in all directions. At the outer end of the trench a narrow wheelbarrow road, striking off at an angle, was the exit to the surface.

The trench, as you know, was not dug in all its height at once, but by successive lowerings of the floor; and in Figures 33 to 40, which illustrate the last stages of the digging, the bottom of the trench in every case is the last floor of all, the floor shown in the drawings.

In Figure 33 you stand at the surface end of the exit and look in. In Figure 34 you stand at the inner end of the trench and look out; and the corner that the wheelbarrow man is about to turn, and which in the last picture he has just turned, is the corner between the main trench and the road of exit.

Figures 35 to 38 are in the order of time. In Figures 35 and 36 the piece of upper floor at the far end is the ground you stood on in Figure 34 and is the floor at which last season's work stopped. In Figure 37 that remainder of floor has disappeared; the new floor is the only floor, and you look at the last moments of digging. In Figure 38 you stand where the sheep are seen in Figure 34 and see the work finished. The man at the far end is in the central expansion of the floor. He stands at the intersection of the lines AB and NS of the drawing, at the precise middle of the mound. Figure 39 and Figure 40 are successively closer views in the same direction, with a stake in the place of the man.

Looking at the upper drawing, you see that at the middle of the mound the digging was exactly fifteen metres deep; the floor was fifteen metres below the top of the mound. Going out from the middle, which is to say going east from the middle, the floor, as you see, slightly fell until, reaching about sixteen metres east, it began sharply to rise and continuing to rise in the exit and beyond the limits of the drawing, it came finally to the surface at the point where you stood in Figure 36, a point in the rolling meadow which surrounds the mound.

Looking at the right hand end of that drawing and seeing the already flat slope of the mound, you might guess without being told that the level of the ground round about was decidedly higher than the bottom of my digging in the mound. And in fact the point of exit in the meadow, though chosen as particularly low, was higher than the new bottom of the trench by about two metres. Water no longer ran out. And when I last saw my digging, after a time of rain, the digging was a long pond.

The object of this season's digging was to get to the bottom of the artificial mound. That bottom was reached, as you may see in the drawing, at a depth of about fourteen and sixty centimetres below the top and turned out to be sand and gravel, a drift of sand and gravel and stones, such as may be seen in many a place on the Pacific slope. My trench went down about half a metre, as you see, into that sand and gravel, but without discovering a particle of pottery in it or of any other human remains.

The surface of the gravel in my drawing is no free-hand sketching, but plotted on continual measurements taken in the course of the digging, and you see that the surface was very level and even. And it was very level and even, not only east and west, which is the way you see it in the drawing, but in all directions, though showing (as might be expected) a slight fall towards the south, that is, towards the sea.

My digging, as I say, afterwards became a pond, and it would have become a pond even if I had gone no deeper than the top of that gravel. The top of that sand and gravel was still a metre and a half below the upper end of the exit, and it was anything from a metre and a half to two metres or more below the general neighbouring surface.

But the mound was built on the gravel. How did the surrounding surface come to be so much higher than that on which the mound stood? Was the mound built in a hole? I think not. I think that the ground now surrounding the mound, the ground of the meadow, is ground that has come there since the mound was built. That ground is certainly not virgin like the gravel. In sinking the road to the trench it was found that the earth contained occasional potsherds. Earth contained in muddy water constantly comes down from the hills, and some of it must stick. I think that since the time of whomever raised the mounds, the whole neighbourhood though lying in a slope (a general slope, as I have told you, of about six in a hundred) has become overlaid with earth to the depth that this gravel indicates, a depth of five or six feet. The level of the sand and gravel under Mound B is what *was* the level of the surrounding ground when the mound was new.

In one respect, however, the surface of the sand and gravel would seem to be not exactly the natural surface. The sand and gravel were found to contain many stones. In Figure 38, on the bottom floor and near the left hand corner, you see a stone of the gravel still in place. The stones on the right hand side of the floor, in the same figure, and the many stones on the floor in Figures 36, 38, 39 and elsewhere, are also stones of the gravel, but stones that have been extracted and, being too big for the wheelbarrows, have been rolled aside and left. And there were smaller stones in abundance. But it was curious that all the stones in the gravel, big and little, were completely sunk in it. Sometimes, as my drawing represents, a stone sunk in the gravel just grazed the surface, but no stone stuck out above. Usually in a drift of sand and stones, the surface is rough. Stones of all sizes stick out, and even lie on top. A horse has to pick his way. Here the surface was smooth. There were no signs of the surface having been a beaten floor, yet it would seem to have been to this extent artificial that it had been cleared of stones.

On that bed of sand and gravel stood the mound, a strange though simple structure, an outer mound of earth like a thick shell, enclosing a mixed mound of earth, sand, and what seemed to be ashes.

The sand was the same white or grey sand as underlay the mound; and in Figures 39 and 40 you see a couple of layers or pockets of the unmixed sand appearing on the face of the digging as white patches—not those up and down streaks which are merely the effects of drip on the face of old digging, but the two horizontal patches below. In Figure 39, the white shelf is mostly the effect of sunshine; but in the face of the digging, just *above* the shelf and in the left corner, the horizontal white patch is again a pocket of pure sand.

The other ingredients of the inner mound, the earthy and ashy ingredients, though much mingled with sand, were characterized by a blackish colour and by a bad smell. The blackish colour—from brownish to bluish black—which

CHOCOLÁ, Mound B

Vertical section, east and west, through the middle. Excavation tinted

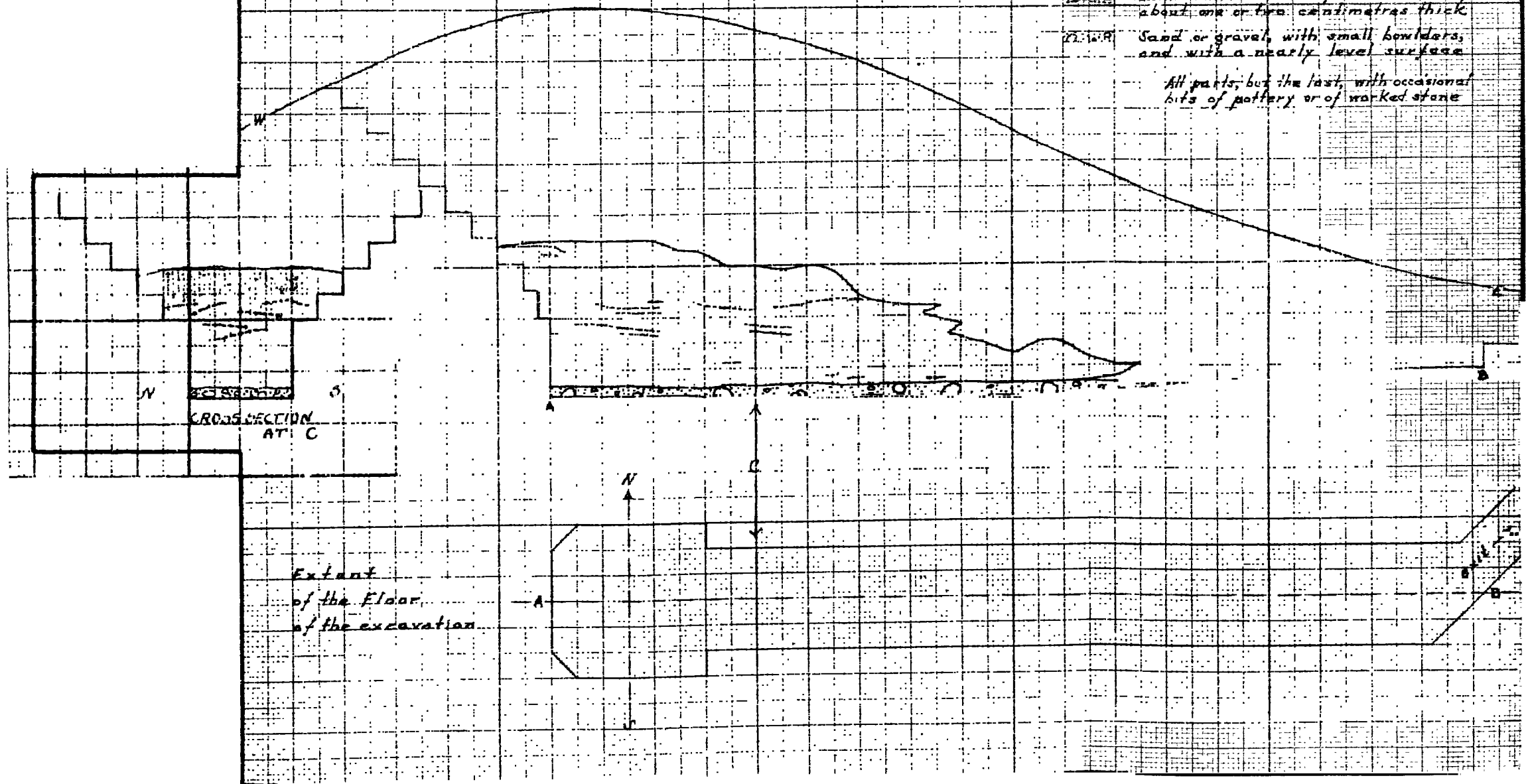
Earth.

Dark, stinking mixture of earth, sand, and apparently ashes, with occasional sticks and charcoal

In the last: Sheets of leaves. Mostly about one or two centimetres thick

Sand or gravel, with small boulders, and with a nearly level surface

All parts, but the last, with occasional bits of pottery or of worked stone



gave the digging in the inner mound the appearance of a coal mine, is indistinguishable in the photographs from mere shadow. The smell was of a sort that reminded me of something like a newly opened ash heap, or a heap of ashes mixed with rotten vegetables; while some described the smell as sulphurous. The smell, and a great part of the black colour, were lost by exposure to the weather. But in new digging both were plain. The transition from the outer mound to the inner was sharp, and a digger was informed of the transition at the same moment by his eyes and by his nose.

Among the lesser, but not less peculiar, ingredients of the inner mound, were sticks, charcoal, and leaves. The occasional sticks, which were always short sticks often charred at one end as if they had been fire-wood, and the occasional sprinklings of small charcoal, seemed to be accidents of the earth and ashes, like the occasional small stones. The leaves were in sheets.

And those leaves, as I have told you, notwithstanding that they were caked together and rotten, had still something of their primitive green colour, a conservation of colour which according to some opinion might be due to the strongly alkaline ashes. But for all their remnant of greenness, the leaves were so rotten and so tightly caked together, that it was never possible to see what leaves they were; only this was clear, that they were always long leaves, or at least of the sort that has parallel veins. Some of my men called the leaves grass. Others said Indian corn, or even plantain leaves. Others, considering certain pieces of stem, perhaps with more probability said palm leaves. Whatever they were, they were in sheets or layers which on the vertical face of the digging appeared as lines. The lines were found crossing the digging at very irregular intervals of height and were not commonly level but more or less bent or waving, and any one line was commonly of various thicknesses. The line might in places be as thick as your finger, seldom so much as twice that; and often tapered off to nothing. No single sheet seemed to be very extensive. Even when the trench was narrow, even when it came down to only four metres wide, it was seldom that a line of leaves could be traced across the whole width; and as the face of the digging advanced, any particular sheet, commonly in a short while, came to an end. The sheets might be called patches.

In Plate VI you see how the inner mound and the sheets of leaves would have appeared on a particular vertical section, the lengthwise middle section of the trench. Of course, I never saw that section. But I was in the habit of making sketches, to measure, of the advancing face of the digging, the advancing cross-sections, and from those momentary cross-sections—of which I had above a hundred—the section of the drawing is compiled.

You will understand in the drawing that a short line of leaves does not of necessity mean that the sheet or patch of leaves was small. It might have been large but one that the section of the drawing caught only a fringe of. In the same way, separate lines of leaves, in the drawing, do not always mean separate sheets. In the neighbourhood of five metres east of the centre, for example, and a little below the eleven metre level, you see a couple of long lines nearly on one level but with a gap between them. It appears from my notes that the two were one sheet; but there was, so to speak, a hole in the sheet, and it happened that the

section of the drawing passed through the hole. Both in the outline of the inner mound and in the lines of leaves, a slight shifting of the section, towards you or away from you, might make many alterations.

But while there is nothing sacred about the particular section of the drawing, it probably tells as much truth as any other section. To take a detail, a frequent curious feature of the leaves, in the digging, was the fact of a sheet of leaves, or line of leaves, lying in some part of its course close above another line; and you see that the drawing shows several cases. And the drawing points correctly to another curious feature of the leaves, too large to be called a detail. The drawing represents the sheets of leaves as peculiarly abundant between the eleven and thirteen metre levels, and it was a fact in the digging that while, as the drawing also intimates, sheets of leaves were to be met with from top to bottom of the inner mound, yet between the eleven and thirteen metre levels was conspicuously the place where they most abounded.

In one respect the section of the drawing might be called defective. The section furnishes no example of a sheet of leaves in what was a frequent posture with them, that is, very decidedly out of level. The little cross-section on the left of Plate VI will show what I mean. The sketch is on the same scale as the main drawing, but instead of a lengthwise section of the trench you see a cross-section, the lower part of a vertical cross-section. The section is taken at five metres east of the centre of the mound and you look towards the centre. You look in the same direction as in Figure 38 and as I myself looked in, in making the original sketches. The right and left boundaries of the sketch are the shelving sides of the trench. At the bottom is the gravel. The waving line about the ten metre level is the face of the inner mound. That surface, where it crosses the middle of the trench, happens as you see to be just at the ten metre level, which of course is the level that you see that surface at in the main drawing, at five metres east. The dotted lines are the leaves. The sheets of leaves that strike the middle line are the same as in the main drawing struck the five metre east line. The sheets that were arranged one close above the other are still one close above the other. But the slopes are altered. You see in this cross-section—and there were many like it—how decidedly the sheets of leaves might be bent and out of level. They might be so bent and out of level that whatever the sight of them might suggest, it would not suggest the notion of floors.

I have had occasion more than once to speak of Indian mounds found to contain beaten floors, sometimes floor above floor. And it is a fact that the Indians at their feasts often strew their floors with leaves, not with grass or palm leaves, to my knowledge, but at least with pine needles. And had you no other sight of the leaves but those somewhat flattened lines which are all that appear in my main drawing, you might begin to wonder whether the sheets of leaves did not represent some sort of ill-leveled floors or patches of floor. But underneath the lines of leaves no line of beaten earth, nor any satisfactory sign of a floor, was to be seen. And though the sheets of leaves must doubtless in some way represent successive surfaces, I think that after seeing such lines and slopes as my small sketch brings before you, any notion of floors will be dismissed.

As the surfaces of the sheets of leaves were uneven and irregular, so also was the surface of the inner mound.

You see in the main drawing the contrast between the rough inner mound and the smooth outer. When you look down instead of up, when you look at the leaves instead of at the outer mound, you see no such contrast; the lines of leaves and the outline of the inner mound are alike uneven, and the likeness is especially striking in the small sketch. In fact, with an eye to the small sketch, you might be tempted to say at once that the surface of the inner mound was merely the topmost of a series of uneven surfaces, and that whatever should explain the one would explain the other. But whatever truth there may be in that (and I believe it contains the truth) that topmost surface is not the surface of a sheet but the surface of a mound, and looking at the main drawing, you will see that the mound has particular features. For one thing you see how the inner mound, in comparison with the outer, does not rise to anything like a peak. Westward of about east 7 or 8, the whole top of the inner mound looks somewhat flattened. And for another thing, you see that the general unevenness of the surface is most extreme on the side.

And though by shifting the section of the drawing, the alterations that would be made in the outline of the inner mound might in details be violent, those two features would remain: the flattish top and the extremely irregular side. To me, in my digging, the irregularity of the side, as it developed, was especially perplexing. What process of building could have been so irregular? And I may say that when my digging, going down from level to level, struck the top of the inner mound and I saw the ashes and charcoal and the appearance of a heap, I began to think of things not built. I began to think of heaps of ashes that I had seen elsewhere. The Indians in some places at their periodical witch fires undesignedly raise heaps of ashes. The fireplace, in the course of generations, becomes a mound. And of course a thing that grew by chance might have many irregularities. But I had never seen those witch-fire mounds more than a few feet high. Any history like theirs for a mound of the size that *this* began to show, became very unlikely. And the appearance by and by of quantities of such stuff as sand, and even occasional clay—stuff that must have been carried there—was finally proof positive that this mound was not the result of any imperceptible growth, no matter on what scale, but was something deliberately built.

But was it built by bedlamites? How was it built so shapeless? The explanation I have come to is simple, though for some reason I was a long time coming to it. The present shape of the inner mound is not its original shape. The mound was built up regularly, but the stuff it was built of was its ruin. A steep mound, such as the Indians would build, composed in great part of such stuff as sand and ashes, and that stuff often heavy with rain, was not stable. The mound was not exactly like a mound of wax in particular, it was not homogeneous. But it was porous. It became filled with water. Intermittently and irregularly the top sank. The sides bulged and spread. Independent of movements of the mass, and perhaps more important, rain, on such stuff as sand and ashes or on earth mixed with such stuff, rapidly cut and diversified the surface; and before the outer mound could rise to cover it, the inner mound had taken the shape of ruin that the drawing represents.

There was one curious detail that was not at first sight accounted for. On the side of the inner mound, among the numerous humps and bulges big and little,

such as the drawing represents, there occurred sometimes (as happens also to be represented in the drawing) projections of another sort, projections incapable of holding themselves up and that must have existed from the first moment of their formation only by resting, as you see them rest, on contiguous parts of the outer mound. The outer mound, at that moment, must have been just at that level.

And my natural conclusion, for a long time, had been that the inner and outer mounds, for whatever strange reason, must have been built up together, built up abreast. Who was I to say what the ancient Indians might not have thought of doing? And such a blind process of work would account at once for the wildest irregularities in the surface of contact of the two mounds. Still, the notion of such a process was repugnant to the mind; and not only that, but seemed to add new mystery to the leaves. In such a process, which would make the distinction between inner and outer mound almost illusory, how should the leaves (whatever their purpose) have been kept entirely to the inner mound? Why should they never—with inside and outside at a level—why should they never by any chance have run outside? But they never did. And I do not now believe such a thing as that the two mounds were built up together. The inner mound was built in the natural way, by itself, and became ruined in the way I have said; and the details of those flying rags and teeth, as I have called them, is merely a last consequence of the same ruin. When the outer mound came to be built, the ruin of the inner mound did not at once cease. The outer mound, rising in a ring, protected so much as it covered, but nothing above. Whether by rain or by the mere traffic of the builders' feet, the ruin above continued. Falling material sometimes overflowed the edge of the rising ring; and those ragged and jagged shapes were the precise result.

So much for the surface of the inner mound. Rain and ruin, and the materials, seem to account for it. And now to go back to the sheets of leaves.

I have rejected the notion of floors. I thought of several other things. I thought of roofs, thatch roofs that had fallen to the ground, roofs of perhaps such temporary shelters as in corn fields, and at feasts, Indians often put up. That would account for the long leaves and perhaps for the patchiness of the sheets. But the objection of the uneven ground remained, not to speak of the absence of fireplaces. Then again I thought of natural growths, growths that might have come up on the successive additions to the height of the mound and been successively cut down. But there were no signs of anything like roots. I even thought of certain strewings of leaves, or at least of green switches, practiced annually in some places at the time of the Five Days—not that I fancied *this* might be the same as *that*, but merely that if the leaves were not to be explained by any rational purpose or natural accident, they might be set down to some unknown superstition.

However, I remarked a little ago on the innuendo of the drawings, especially of the small one, and on the suspicion that the sheets of leaves and the surface of the inner mound would have one explanation; and I think that the explanation of the leaves is already found.

That inner mound, with its sandy and ashy constituents, was subject to rain and ruin, not only after it was built, but while it was building. The successive

uneven surfaces marked by the leaves are themselves surfaces of ruin—ruin caused by rain; and the leaves are the attempt of the builders to hinder the ruin. At the present day, in these countries, mud bricks while still soft, or a new-laid mortar yard, or any construction of mud or mortar needing temporary protection from rain, is usually covered with leaves: plantain leaves, cane leaves, palm leaves, and long leaves, which lying horizontal may not keep out the water very long but make a shield against the beating of the rain. To suppose that that was the purpose of the sheets of leaves in the inner mound is only to suppose that the means used now were used then.

The mound was not built at once, but by degrees. When work was to be interrupted for a length of days, the workers, if rain was expected, were required to leave their work covered; and the mound was abandoned to the protection of leaves. The rain came. On a wide surface, such as the temporary top of the mound, there were by and by pools and currents of water underneath the leaves. The leaves in some places drifted apart, or drifted together, or drifted altogether away, and the covering became a patchwork. The sandy and ashy surface began to melt and wash down, and the watery mechanics continuing, the leaves that remained when work came to be resumed were naturally in such lines and shapes as the leaves in both drawings show: smooth, commonly, but variously undulating and broken.

With much bad weather, the benefit of the leaves might in places become next to nothing. Each of the places where you see a line of leaves near above another line is doubtless a place where the original fill between the two lines came near to being washed out. The appearance in the small sketch, with the two near lines in a hollow, would be the appearance due to two wash-outs in succession. A little more washing out between the two lines and the two would have at some point touched; and such appearances were seen. A line of leaves had sometimes an appearance of branching, an appearance of arabesque branching. Those undulating and osculating and tapering lines were explained, as nothing else could explain them, as being the action of water. And such things as finding streaks of sand interlarded in the thickness of a layer of leaves, like streaks of fat in bacon, and various little indescribable appearances, all fell at once into place: they were the precise effects of water. And something on a larger scale you may see in the drawings, which concur in the same explanation.

The object I had at the time in introducing what I have been calling the small cross-section sketch, was to remedy a chance defect (as it might seem) of the main drawing. The lines of leaves in the main drawing showed no instance of the decided bending—the decided scooping out that was a frequent sight in the cross-section of the trench, and that the small sketch showed. It will now appear that the defect of the main drawing is probably not mere chance. The section in my main drawing is a radial section; it passes through the centre of the mound. But the course of water running off the mound would tend also to be radial. Appearances of channeling or scooping out would consequently be commonest in looking along a radius, as in the small sketch you look, and least common in looking at right angles to a radius, which is how you look in the main drawing; this seems to prove the point.

Taking the explanation of rain and ruin to be established, some little attempt may be made in the way of deduction.

Leaves would not be laid in dry weather. The abundance of leaves between the thirteen and eleven metre levels may be taken to signify a rainy season, the scarcity of leaves below and above that abundance, answering to preceding and following dry seasons. A decided reappearance of leaves at the top might mean that a second wet season was just begun. The wet season on the Pacific slope may be said to begin towards the end of April and to end about the end of November, amounting to some seven months of the year, the dry season making up the other five. A dry season and a wet season and another dry season and a little more, might be a year and a half: the raising of the inner mound may seem to have lasted about a year and a half.

The inner mound may possibly be like the outer mound, with a plan somewhat elliptical; but not to be too precise, suppose it circular and every way one shape. It will then appear from my drawing, with a little calculation, that the volume of that inner mound may be something between twenty-five hundred and three thousand cubic metres. Say twenty-seven hundred and fifty. Twenty-seven hundred and fifty cubic metres in a year and a half: how many men would that have taken?

But how much were the times of no work? The sheets of leaves in the rainy season part of my section look to me as if they might represent about five independent sheets, which would mean that during the rainy season there had been five stoppages of work, five periods of work and five periods of rest. How long were those periods? In places where the ancient calendar survives, the habit of the Indians is still to be found of engaging themselves for periods of twenty days. I will guess that in this case of the mound the periods of work and the periods of rest were twenty days each; and you see that five double periods of forty days each, would answer, nearly, to the seven months of the rainy season. For the two dry seasons the leafy record fails. But the system would not be likely to alter. And work and rest remaining equal, the year and a half of building would have comprised nine months of work.

Twenty-seven hundred and fifty cubic metres, then, in nine months of work; how many men would it have taken?

My men, all Indians, undoing the same work, did on a mean, working by task, something over three cubic metres a day, each man. Had they been working, not by measured task, but merely driven, they would not have done more than two, or two and a half. And they had pick-axes and shovels and wheelbarrows and boards for the barrows to go on; and their work, excepting at the last, was of course down hill. The ancient Indians, working up hill, and with whatever barbarous means they had, I should suppose would not have done much above one cubic metre a day, if so much. Say one metre. Twenty-seven hundred and fifty cubic metres, in nine months, at a metre a day a man. Nine months would be about two hundred and seventy-four days. One man's work would have been two hundred and seventy-four cubic metres. Ten men would have done the twenty-seven hundred and fifty. It happens to come out very neat. The inner mound, in the required year and a half, but with half time work, might have been the work of ten men. Of course the half-time work and the metre a

day are both uncertain. With respect to the cubic metre, how far (you might ask) had the cubic metre to be carried? The sand, as the bottom of my digging showed, was near by; but where did the ashes and charcoal come from? Yet whatever the precise errors by the computation, it remains almost obvious, that the raising of the inner mound in the time that the leaves seem to signify, the time of a year and a half, even for the ancient Indians would have been no great work.

With the outer mound it was probably otherwise. The outer mound, down to the level of the gravel, must have had a bulk of something like thirty thousand cubic metres, perhaps more. It must have been ten or twelve times the inner. Ten men, working as before, would have taken, not a year and a half, but fifteen or twenty years at it. But that, of course, would not have been the Indian way of doing. If the Indians did as they do now with any big undertaking, their way would have been to enlist all the people of the neighbourhood, three or four hundred men, perhaps, and get the thing done in a few great efforts. The mound, in a time of work, would have looked like an ant heap, with the swarming people on it; and it is quite possible that the outer mound was raised in less time than the inner.

Anyhow it is to be thought that the inner mound was soon covered. Those who took means to protect their work in its building would not be slow to preserve it when built. And the surface of the inner mound was not found to contain roots, or stalks, or any sign of the vegetation that must have sprung up if the mound had been long abandoned. Besides, at this day, the mere sight of other mounds standing about, of near the same size, makes it almost evident (unless this mound was the first of its kind) that the ultimate size of the mound was foreseen. The outer mound, or outer shell, was not an afterthought, but was in the original plan.

A smooth, flat place having been prepared, a loose, unstable, sandy, and ashy mound was leisurely, but pertinaciously raised, to be overwhelmed with a mound of earth ten times its size. And all for what? On the evidence, I will offer no answer. For what were any of these mounds? Mounds, in appearance like this, are found scattered along the Pacific slope; sometimes, three thousand feet above the sea, as here, but sometimes down in the hot lands; sometimes in disorderly companies as here, but sometimes solitary; mostly near one size, about forty or fifty feet high, all of them, at least outwardly, made of earth though in a country abounding in stone; and all of them—which is their great mark—*round* mounds, not square or oblong, but round and smooth, without corners, steps, or terraces; and rising to a blunt peak, with no signs of ever having had anything on top.

The ordinary opinion about them has been that they are burial mounds, each mound the tomb of some great person. And my digging, though it may somewhat discourage that opinion, has not disproved it. My digging has not absolutely disproved that opinion even in the case of this mound. What is now proved is that, if this mound contains a burial, the burial is not central. But many burials in mounds are deliberately ex-centric. And granting that the shape of these mounds favours the probability of a central burial, if any, yet the absence of a central burial in this particular mound does not perhaps much lessen the probability of central burials in others; that is, unless it is to be thought that all these

mounds are like this strange Mound B. But is that to be thought? Is it supposable, for instance, that all these mounds contain inner mounds of sand and ashes—or inner mounds at all? It may be supposable. But I should think it much more likely that this mound was exceptional.

And then questions come forward. What might be the nature of the exception? Could it be possible, say, that this mound actually contains a central burial, and that the burial has been found? Could it be possible (fantastic as it sounds) that the inner mound was itself in some manner the corpse? Which would lead back to the question of where the ashes and charcoal came from, and again to the prime question of how far the other mounds are like this.

Too little is known—or I know too little. I have set out the facts that I have dug up and perhaps somebody can put them together. I have been able, as I believe, to clear up the matter of the leaves and of the shape of the inner mound, and so at least prevent what might be much lost speculation. But so far as I can see, the general riddle of the inner mound, and of the whole mound, remains. My digging, instead of ending uncertainty, has rather started new uncertainties; and curiosity must be content to wait until somebody shall open another mound.

And in case any museum or traveler should wish to make the experiment (it may be worth saying) they might advantageously pick out some smaller mound than mine. In Chocotá itself, for example, the mound marked H on my map is another of these round mounds, but perhaps not more than four-fifths of the height of mine, and by a geometrical consequence only about half the bulk; and a trench in it, proportional to mine, instead of coming to near five thousand cubic metres of digging as mine did, would come to only twenty-five hundred.

With no central burial found, however, in the one mound, exceptional though the mound may be, that has been examined, and no guidance (as there is with rectangular mounds) to the situation of ex-centric burials, with (to be plain) no assured prospect of plunder, it may be that even so much digging will seem to be too much. I have been the recipient of all possible help from various persons of Chocotá. I have had the pleasure of expressing my thanks to the European owners on the occasion of their rare visits, and have constantly had to thank Mr. Henry Kummerfeldt, the manager. Yet I could find it in my heart to wish those excellent people what they would look upon as a piece of extreme bad luck. I could wish that in the course of their extensive works they might somehow be compelled to the labour of leveling one of those mounds. Their methods would be destructive, but something would appear.

Human remains, such as bits of pottery, or of worked stone, were met with (though not in any great quantity) throughout the whole height of the mound, inner mound and outer mound alike, and down to the very surface of the gravel: but all evidently accidental, either dropped by the workmen or already in the earth or ashes that the workmen brought. The pottery remains, mostly coarse, included one or two fragments of small images. The stone remains included the ordinary obsidian knives, pieces of mill-stones, one or two small coarse mortars, a few inches of sheet mica, and the only thing of any kind that I thought worth saving was a somewhat uncommon bead, a thick cylindrical stone bead of a greenish colour and with spiral flutings (fifty-five by twelve millimetres).



FIGURE 1

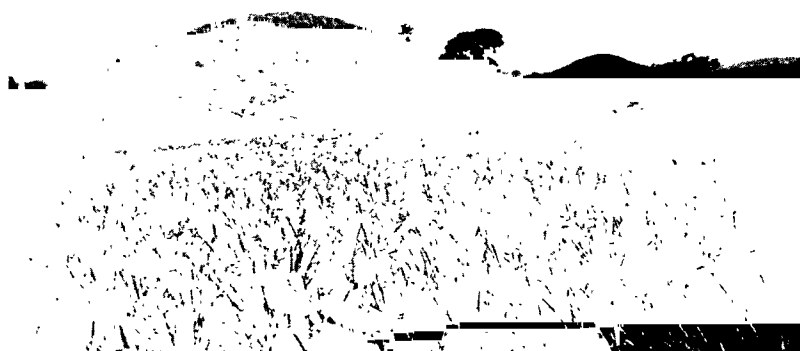


FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



FIGURE 7



FIGURE 8



FIGURE 9



FIGURE 10

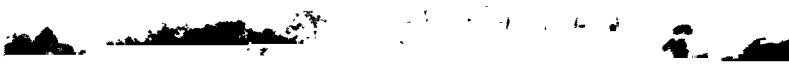


FIGURE 11



FIGURE 12

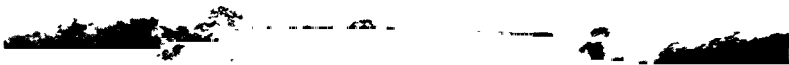


FIGURE 13



FIGURE 14

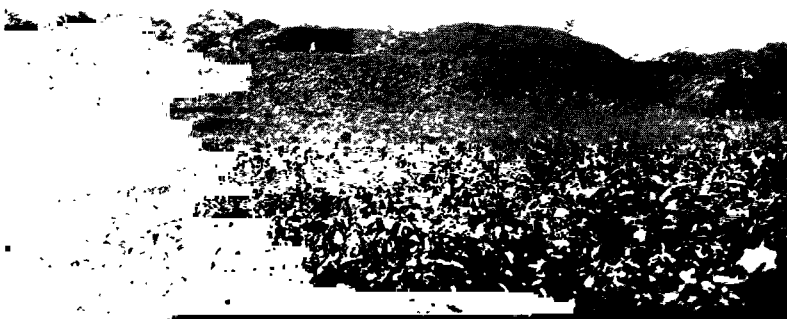


FIGURE 15



FIGURE 16



FIGURE 17



FIGURE 18



FIGURE 19



FIGURE 20



FIGURE 21



FIGURE 22

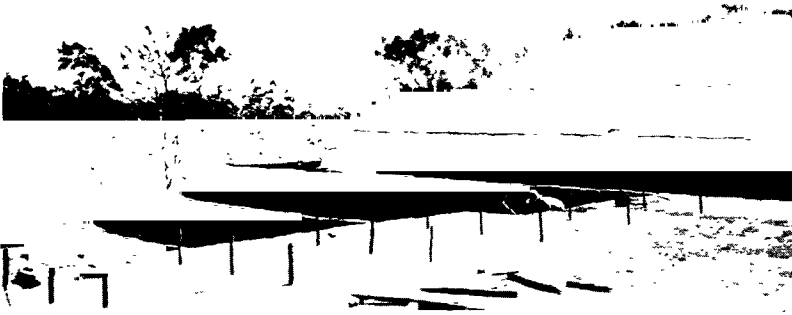


FIGURE 23

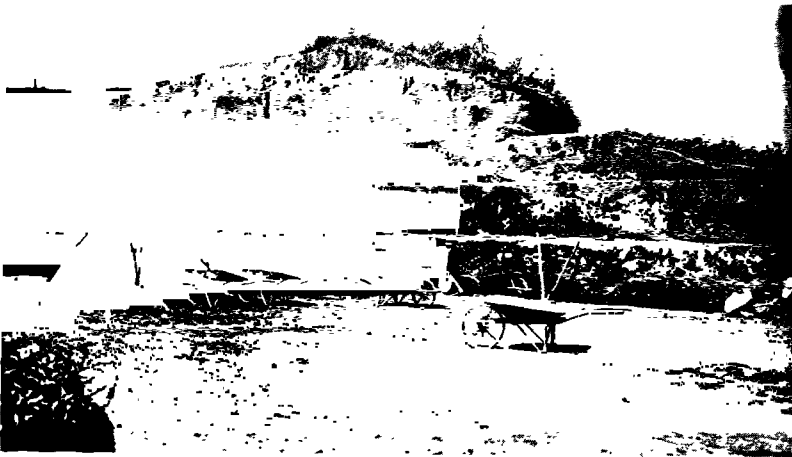


FIGURE 24



FIGURE 25



FIGURE 26



FIGURE 27



FIGURE 28



FIGURE 29

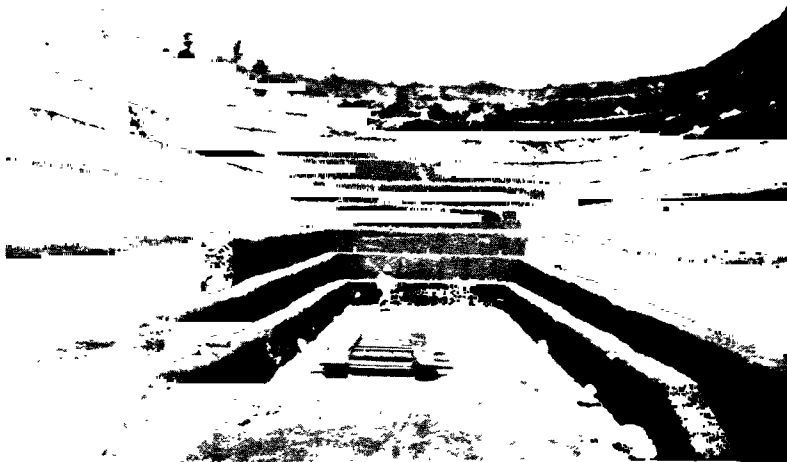


FIGURE 30



FIGURE 31



FIGURE 32



FIGURE 33



FIGURE 34



FIGURE 35

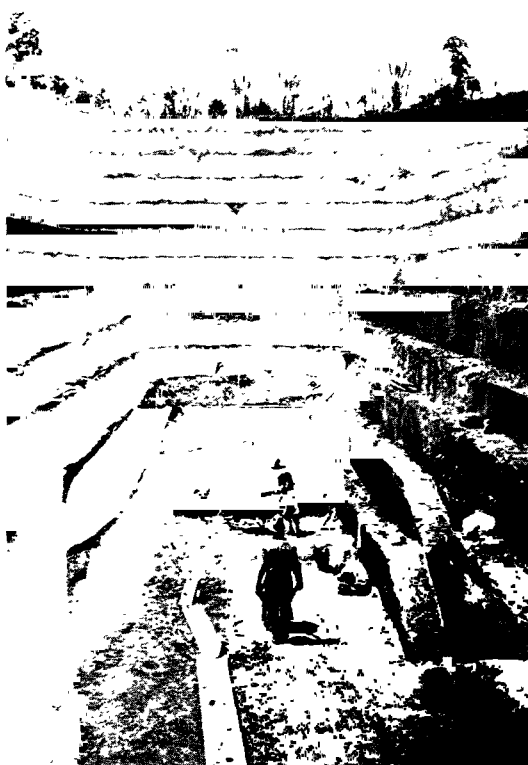


FIGURE 36



FIGURE 37

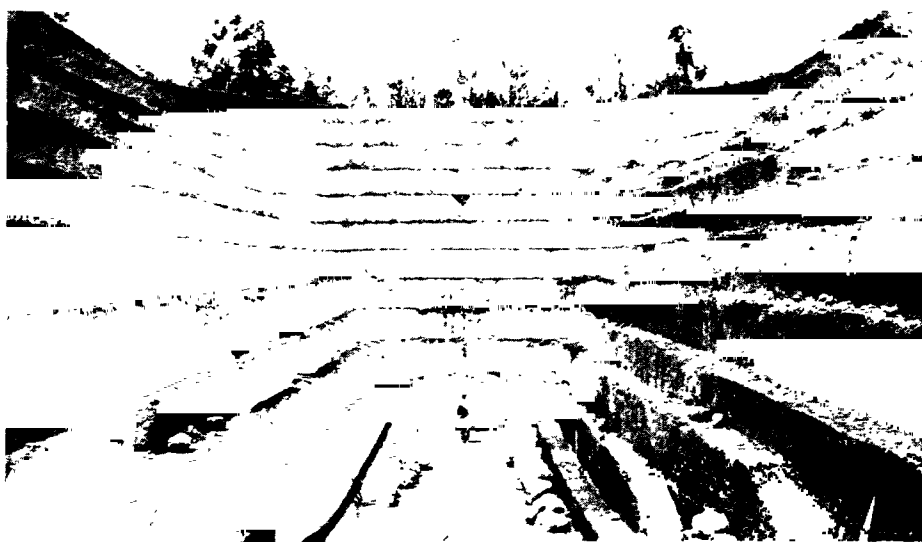


FIGURE 38



FIGURE 39

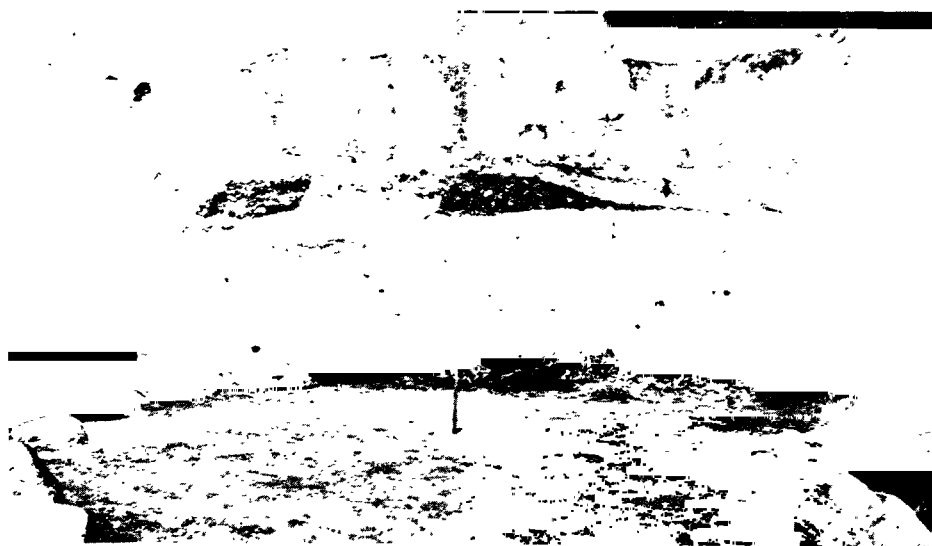


FIGURE 40

EXPLORATIONS IN THE HIGHLANDS OF WESTERN GUATEMALA

By ROBERT BURKITT

THE sites that I wish to speak of are at least six: Xoch, Chipal, San Francisco, Chichel, Nebaj, Xolchún. Xolchún, the last place I put down, is much the most important of the six. But the order in which I have put them down is not intended to be the order of their importance. It is the order in which you would get to them, as I did, coming from the Atlantic side. Xoch is the furthest east and Xolchún the furthest west.

It is easier to tell you how to pronounce the names of these places than it is to tell you exactly where the places are. Nebaj is the only one you would find on a map. There is no really good map of Guatemala, though some are better than others. A map that has been popular is the large map of Paschke, published in Paris in 1889. Another is Bianconi's pirated map, also published in Paris. Those maps made no great changes in the old, settled parts of the country, the South and Southwest; but for the northern part, they simply made the older maps look ridiculous. Then there was Au's map. It was never a popular map, but it had the peculiar merit of distinguishing points that had been astronomically fixed: interior points; the coast was right even on old maps, owing to the charting of foreign admiralities. Then there was Sapper's map which made improvements in the province of Alta Verapaz. Afterwards came Hendges's map; and that is the map that I happen to be using. It is dated 1902, published in Washington, by what appears to be a Government office, the Bureau of the American Republic. Hendges's map is perhaps, on the whole, as good a one as I have ever seen. It evidently takes some account of Sapper's improvements; and what is important, it lays down the Mexican boundary, determined scientifically by the boundary commission towards the end of the century. It may be supposed that anything on the boundary line is in the right place.

The outside line of the Cuchumatáns on the map, the southern line of them that you see running east and west, is placed, I suppose, more or less right. The southern front of the Cuchumatáns is a very definite line; and at any reasonable distance, it is a very distinct line to the eye. At a distance of twenty or thirty leagues, the effect of unity in the long mountain front is very striking. Riding from Quiché to Totonicapan, for instance, you see the Cuchumatáns as a great blue barrier on the north. The barrier seems to be penetrated here and there by black glens. But there is no rift or opening that you can see through. The general appearance is that of a solid frowning rampart rising to a very even height and long stretched out.

You wonder as you look at it what there might be behind. When you get behind that southern front, the face of things is entirely changed. You forget about the front. There is nothing, almost, to remind you of it. For one thing, instead of the bare and more or less desert looking country to the south, what you

see now is a green country covered to a great extent with woods. And when you look back south, you do not see anything to remind you of the long mountain range you saw from the other side. There is no definite north front as there is a south front. On the north side, you seem to get into a mess of mountains ramifying in all directions. There are some great mountain masses to be seen and tops apparently higher than anything on the outside range. And there are endless spurs and ridges and hills behind hills and rivers between. Finally the whole mass—the whole system, I suppose a geographer would call it—sinks down to the hot country of the Mexican border and the river Chixoy.

The places are distributed along the southern rim of the eastern Cuchumatáns that you see marked on the map; and the last place, Xolchún, is on the south side of that rim and is the only one of them that is in the province of Huehuetenango, the others being all in Quiché. And when I have said that much, I have said nearly all that it is worth while trying to say, by reference to the map. So I will let the map alone. But I am going to try to tell you about the places and how to get to them, and in so doing, I shall probably give you an idea of where the places are, the same sort of idea that I have myself.

To get to these places you would start from San Cristóbal Verapaz. You get there from Panzóa, going up the valley of the river Polochic. There is a little ramshackle railway that goes, not up to Tucurú as the map makes it, but to a point two or three leagues below. From that point on you have to ride. There is a cart road that goes on to Cobán. You follow that muddy cart road and climb up out of the hot country into what is called cold. You pass through the little squalid villages of Tucurú and Tamahú and on and up to the equally squalid village of Tactic, where you would probably stop for the night. The one redeeming feature of the place is that there is a fairly comfortable little inn there. Tactic is where the old road from Guatemala comes in. It was the place selected for an atrocious political murder one night some years ago, arranged something like the death of Mr. Madero lately in Mexico. From Tactic you go on about level. It is nearly always raining about there and you splash through unusual quantities of mud. Two or three leagues on from Tactic, however, you leave the mud and leave the Cobán cart road at the same time. Speaking of leagues, a league is supposed to be five thousand yards of the country and a yard of the country is by law eight hundred and thirty-five millimetres and it works out that a league is very close to four kilometres. It is between two and three miles. But kilometres, and miles even, are too precise for here; leagues are what everybody speaks of. In the Alta Verapaz, on the ordinary bad roads and on an ordinary beast—also bad—you will make about a league an hour. On the cart road you will do a little better. And on the dry roads of the Pacific side you will do about two leagues an hour.

Two or three leagues on from Tactic, as I was saying, you leave the Cobán cart road and take to another cart road that goes off to the left. You will find the going on that road to be a good deal better. The road takes you through an open country sprinkled with trees, scrub oak and pine. Two or three leagues of that and of a sudden almost, as you come around a corner, you see a range of high wooded hills ahead of you in the west. And at your feet, between you and the hills, you see a wide sheet of water with an edge of meadows and marshes. The water

is the lake of San Cristóbal, the only lake in the Alta Verapaz and a queer place for a lake, on top of a tableland, almost fourteen hundred metres above the sea. The water is always at the same height and is said to be very deep, and it is full of small red fish.

The town of San Cristóbal is at the far shore of the lake; the road goes round the left of the water. The town, as you come into it, is rather a tidy looking little place: a long street round the meadows, by and by some pavement, and finally the usual square with the church facing west and the market in front. San Cristóbal has a pleasant cool climate and it does not rain quite so much as in other parts of the Alta Verapaz. The town was founded, or at least named, by Bishop Las Casas, who seems to have been partial to Saint Christopher. He gave that Saint's name to several places, including the chief town of Chiapas. The Alta Verapaz town is called for distinction San Cristóbal Verapaz, sometimes San Cristóbal Kahkóh; Kahkóh is the Indian name of the place, probably referring to the lake.

There is a cart road to San Cristóbal for the same reason as there is to Cobán, to get the coffee out. San Cristóbal is a coffee centre, though on a much smaller scale than Cobán. I daresay it ships [1913] twelve or fifteen thousand bags a year, grown to a great extent on small Indian holdings, and the coffee from that little town gets nearly the highest price in the world. The coffee carts are drawn by oxen and have Indian drivers. They travel slowly. They take a week or more to get down to the railway, depending on the state of the road. When I was in Cobán there were no carts getting in or out. There were about four leagues of mud holes to go through. A cart would stick in a mud hole for a week at a time. Cobán was almost in a state of siege. They were saying, at the time, it was Adrianople. All for want of a little intelligent road mending! The only decent piece of the whole road is that little branch that takes you to San Cristóbal, simply because there are fewer carts over it.

San Cristóbal is the end of cart roads and of German shops and of regular posts and regular anything, till you get to the other side of the country. From San Cristóbal on, the map as I have said, is nearly useless and I have constructed the diagram in Figure A for you instead. The diagram does not pretend to be a map.

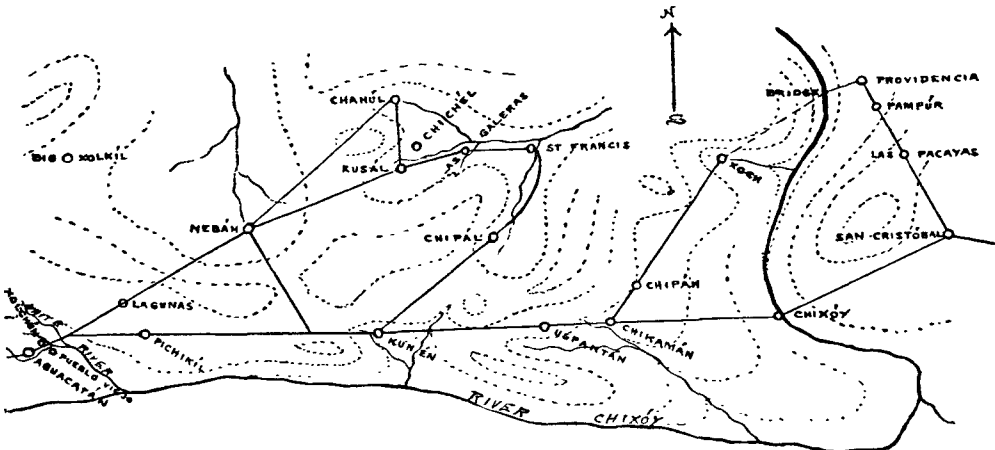


FIGURE A

Roads are represented as straight lines and the course of rivers and contour lines are also merely representative. But as far as distances from place to place are concerned, the proportions, I think, are not altogether misleading. The diagram would probably answer roughly in most distances to a scale of about three-quarters of a centimetre to a traveling league; or one centimetre equals five and one-third kilometres.

The usual road from San Cristóbal, going west, and the only public road, is the road that crosses the Chixoy River at the place called Chixoy, about five or six leagues from San Cristóbal and about five hundred metres above the sea. The road is down hill, of course, and the latter part very steep. There are also many steep places in the climb up on the other side. But steep places are a matter of course. The public roads as a rule, especially west of the Alta Verapaz, though the natives consider them good, are not really laid-out roads. They are merely improved footpaths and if you have any respect for your beast's back, you will often get off and walk.

The really vexatious thing about the Chixoy road is that there is no bridge at the river. There have been several bridges, stone and iron, but they have all been carried away. The river is subject to great floods and it is not fordable even when it is down. It is a rushing body of water with steep rocky banks. When the water is especially low, you cross on a raft secured by a rope. At other times you sit in a sling, which is slung from a cable, about thirty feet above the water, and they haul you across in the air. The cable is stretched between two towers, the remnants of a former bridge. Baggage goes in the same way. And your beasts are roped and swum across. It is all very tedious and clumsy; and, in spite of ropes and everything, if the river is high, you are in danger of losing beasts.

I did not come by Chixoy this time. I decided to cross the river at a point about ten leagues or so lower down. I had learned of the existence of some sort of bridge at that point and I understood that by going that way I should get to a place called the Xoch where there were ruins that I had heard of and wished to see. I left San Cristóbal, consequently, by the road marked on the diagram as going off to the northwest. The road is a little up hill at first, as far as a hamlet called Las Pacays. My aneroid there marked fourteen hundred and ninety metres. Then you go down hill. You go up and down, but the downs gain on the ups. At the place called Pampur, you have dropped six hundred metres, and down to the river you drop six hundred more, the country getting warmer, of course, all the time.

And there is a sudden change of surroundings a little after you begin to go down hill. You get into the woods and you do not get out of them again till you get to the Xoch. There is a great wedge of forest country that sticks in from the north between the settled parts of the Alta Verapaz and the settled parts of the Quiché, and this road takes you across the small end of the wedge. That forest country is a rainy country. When you can get a look out over it, you are pretty sure to see a shower somewhere. And towards evening, as a rule, it comes on to rain all over. It rained on me the greater part of the way. The road in the woods is a muddy lane between trees. On the way down to Pampur there are only two or three places where you can get a look at the country. When you do get a look,

you see that you are going down round a mountain, with the mountain on your left. The mountain comes to an end, in the distance, with the ravine of the river. The far side of the ravine is another mountain, high and steep and covered to the top with woods. That mountain seems to be dead ahead of you, and in fact you have to climb it by and by in getting to the Xoch. That mountain is the most striking thing in sight; but most of the country you look out over is to the right of it, an expanse of hills and valleys stretching away to the horizon, west and north. For some distance in that expanse below you, you can trace the hollow of the big river. It seems to make a great turn to the west, not shown on maps. You cannot see the river itself, anywhere, and you cannot make out anything with certainty in what you are looking at. You can not see the face of the ground. It is all nothing but a surface of woods, shadowy and uniform. You cannot tell where anything begins or ends in it. It puts you in mind of Chateaubriand, "*La cime indéterminée des forêts.*"

There are people living in the woods here and there, though you do not see where until you come on them; Indians mostly, immigrants from the settled parts of the Alta Verapaz, running away from plantation work and the oppressions of the Government or the authorities. They have formed a number of little hives or settlements up and down the river. But they do not very long escape vexation. Somebody buys the land and puts the inhabitants to work; or else they have to run away farther.

One of these settlements is Chamá. Others are Pampur and Providencia, close together on this road that I took. At Pampur there is a waterfall. The water comes out of a hole in the side of a mountain, falls fifty feet or so into a pool, and then disappears into another hole. That limestone country is full of caves and underground streams, and though it is soaked with rain, you may travel leagues and not come to a surface water that you can water a beast at. Evidently the water at Pampur attracted the ancient inhabitants just as it does the modern.

Providencia, as the owner calls it, or Xolyuk, as the Indians call it, is a little further down. There is some coffee and henequen planted. It is owing to Providencia that there is a bridge down below. The bridge is not a public affair. Providencia has men on the other side of the river and the bridge is to get them over to work. The place of the bridge is said to be the narrowest place in the whole canyon of the river. There happened to be rocks sticking up that piers could be built on, and close enough to lay beams. It is a narrow bridge, not meant for beasts, but beasts can cross it if they don't balk. The only thing to look out for is that there are no rotten cross-sticks. The man at Providencia very kindly sent and had all the bad sticks changed for me, and my animals went over without the slightest trouble.

Very few people seem to know about this bridge, or care to use it if they do know, partly because it is so out of the way for most people but mainly, no doubt, because the road from Providencia to the Xoch is not a riding road. Save a little at the beginning and at the end, the road is a mere Indian mountain trail, steep, like a staircase almost, and being under the woods where the sun never shines, it is a staircase of mud. You can drive a beast over it, but not a load. I got an Indian to take up my pack-mules' packs and the beasts had nothing but their saddles.

I do not know how far it may actually be from Providencia to the Xoch, probably not far, but it took me about fourteen hours, with very little stopping. You go steep down to the bridge and then immediately up again, up the face of that mountain that I said you would have to climb. You get up to about sixteen hundred metres at one pull, a good deal higher up than San Cristóbal is. You don't go quite to the top. You circle round it, to the south, and then you go down again. You go down a ridge and come to a small settlement called Chi Ritibol which means "At the foot of the ridge." Then, continuing to circle the mountain, you go up it again to a higher point than before and then, finally, down to the Xoch. If you care for the barometer heights, here they are in metres:

860 (Providencia)	1230 (Chi Ritibol)
230 (Bridge)	1720
1570	1100 (Xoch)

When they finally got to the Xoch, my men shouted for a drink. I don't mean a drink of water.

The Xoch, or Soch as I believe the owner writes it, is a settlement like Chamá or Providencia, settled by Indians from the eastward. The diagram indicates the Xoch as a valley, and it is a valley, a small fertile valley that lies about east and west and runs down steep to the Chixoy. The north side of the valley is overhung by the mountain you have come round and the south side is a wooded ridge. There is a small coffee plantation in the Xoch. The owner of the plantation and of all the upper part of the valley including the ruins is a well-to-do native, Rafael Cobián, by name. He lives away in Sololá, however, and never comes now to see the place. The manager is a German and a very obliging chap; he went with me several times to the ruins, took a man with an axe to help, and so on. I was with him several days.

The ruins are up the valley in the bottom, about half a league above the coffee. The height above the sea turned out to be thirteen hundred and fifty metres at the ruins. The place looks like an abandoned pasture, overgrown with bush. The ruins are hidden in the bush. You have to look for them. And you have to look for them with an axe or cutlass. At least, when I was there, you could not get about among them without chopping. There was some talk of having the place cleared for a cornfield, but for the moment it was all a tangle of bush and briars; you could hardly put your hand on a stone. I took one picture (Figure 1) of the carved stone. I had the bush cut away to let in some light and the moss scraped off. The stone is a slab of limestone; there is no carving on the back. The stone is partly cracked, as you see, and a strip on one side, the right side as you look at the picture, seems to be entirely missing. It is one metre forty-four centimetres high and eighty-two centimetres across the middle. It stands at the end of a plaster floor ten centimetres thick, covered of course with earth, and a little to one side of the image, the right hand side as you look, there is a long sunken yard or floor, parallel to the floor of the image, and about two metres lower. That lower floor was about fifteen metres wide in the middle and about forty-five metres long.

I began to take some measurements of the ruins, but I stopped. I could measure the sides of things, here and there, but with the bush I could not see in

the least how things stood, the alignments and arrangements of them; and the job of clearing the place, of course, was beyond me. And consequently I have no drawing of the Xoch ruins to give you. But there is no question about the nature of them. They are of that same general nature as the ruins of Chipal or San Francisco, of which I do send you drawings. If you could see a drawing of the Xoch ruins, you would see that they did differ from those others in some points, but only as those others differ between themselves. You would say at once that the Xoch ruins had the family look; and they are of the same order of magnitude as Chical and San Francisco; and there are the same sort of remains of plaster images as in the other places, and the same sort of masonry and workmanship, and even of details of ornament in the masonry. And though the Xoch ruins have not been dug, there can be no doubt but the pots and things you would find in digging would be of much the same nature as what you would find and as what has already been found in Chipal.

Nothing was found in Chipal through any intelligent search. Things were found in the course of demolishing a certain part of the ruins to build a house with the stone. It was only a small part of the ruins that was demolished and I should suppose that the things already found in Chipal would be only a small part of the whole—whatever you call it, the whole *inveniendum*, the whole deposit. Anyhow, whatever you suppose the Chipal deposit to be, you must suppose the Xoch deposit to be notably similar.

Besides those principal ruins of the Xoch, there are several smaller ruins in the same valley; and on the north side of the valley there are some caves to examine. Some years ago, a large earthenware image, the manager says, was taken from one of those caves. The image represented a human figure, squatting, I believe; and might have been about half the height of a man as the manager described it. Old Cobián carried it off and has it in his house near Sololá.

Kekchí is the leading language of the Xoch. The language of San Cristóbal is Pokomchi, but most people there, both Indians and others, have a working knowledge of Kekchí.

From the Xoch on, the road is a riding road. The Xoch is the edge of the woods. The road from the Xoch to Chicamán, southwest, and from Chicamán straight on west, takes you through a pastoral country, more or less cleared and more or less dry. Four or five leagues from the Xoch, getting up to about fifteen hundred metres, you come to the little hamlet of Chipaj, half a dozen cabins along the road. Asking people at the place, it appeared that a great many things had been dug up there, especially just a few years ago, as the result of somebody offering rewards for such things. I should judge that the things were got in grave mounds disturbed in the course of farm work.

A little further on, and a little lower down, you come to the hamlet of Chicamán, not quite so minute a place as Chipaj. At Chicamán you come into the regular Chixoy road to San Cristóbal. Heading west on that road, you get up to the village of Uspantán. Uspantán is a wretched little place about the size of Tactic, and reminded me of Tactic. But it is higher and older, seventeen hundred and fifty metres, about, above the sea. On the north side of the village there is a range of wooded mountains, the eastern end of the Cuchumatáns, and the village is on a

swell of ground at the foot of them—a bare, bleak, windy place, in the middle of sheep pastures.

There is a footpath from Uspantán to Chipal, over the mountains; but in order to ride to Chipal, you have to go on west to Cunén and then double back northeast. It is about five leagues to Cunén. All the way you have the Cuchumantán tops on your right. There is a great shoulder that sticks out, and a good part of the way is taken up in skirting it. That shoulder, or salient mountain, as it is, rises to a little peak of its own, which is conspicuous, looking back on it from Cunén; and the Indians venerate the mountain under the name of Wukúb Xikín, or “Seven Ears”. It is curious that there is another mountain of that name in the Quezaltenango neighbourhood.

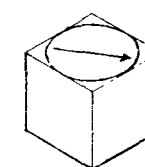
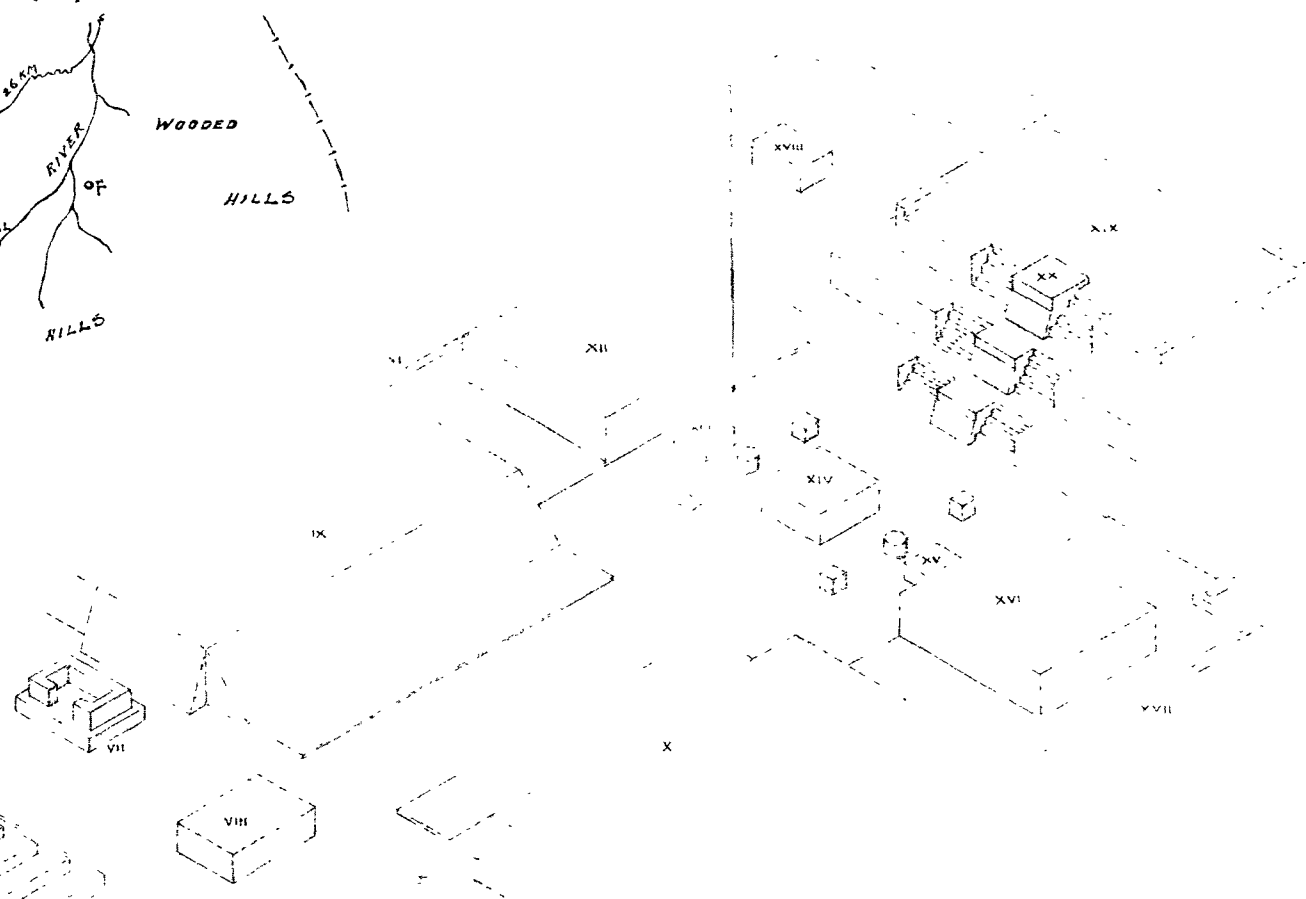
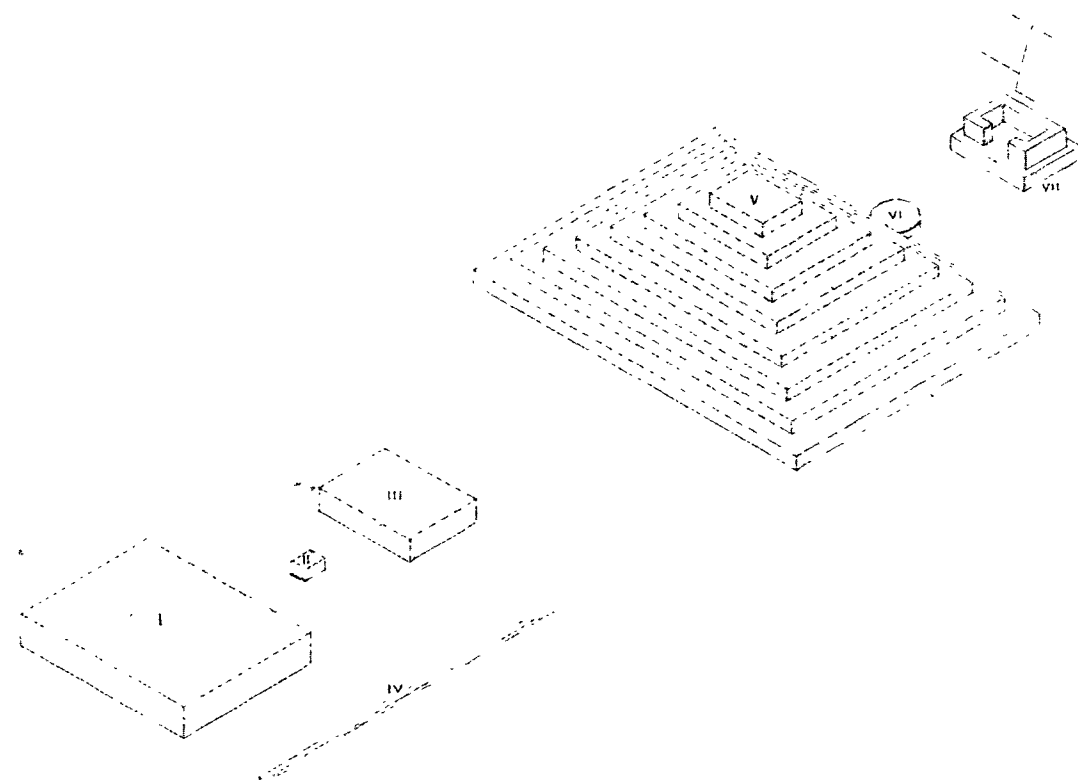
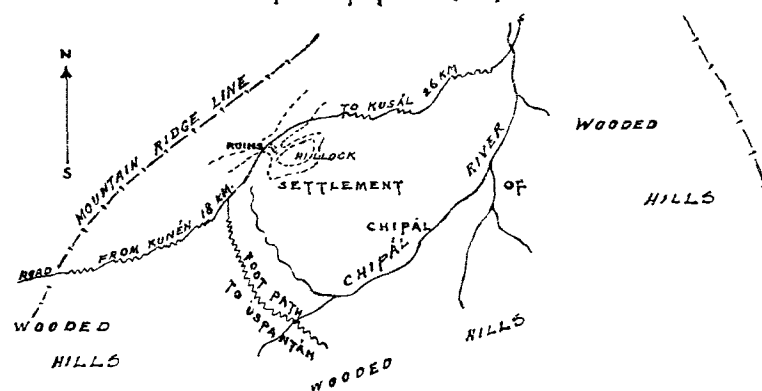
Running out from the base of Seven Ears there is an important southern spur of the Cuchumatáns, and the highest part of the road is where you get over the neck of that spur, about nineteen hundred metres. From there you go steep down, about three hundred metres, to a river, and then up again to Cunén, eighteen hundred metres above the sea, about the same as Uspantán, and consequently in cold country. It is cold enough not only for sheep, which abound, but for wheat. There is wheat grown all along in those uplands and in Cunén there are a couple of small mills. Cunén is not much bigger than Uspantán, but it is in a pleasanter place.

The road to Chipal takes you over the crest of the Cuchumatáns at the lowest point, I suppose, that can be found there, which is about two thousand four hundred metres above the sea. It is not a sharp crest where you go over. It turns out, in fact, to be a tableland that takes you half an hour or more to cross. Then you begin to go down north. And when you begin to go down, you strike the woods again, not the scrub oak and pine that are sprinkled all over the south country, but the old forest that stretches away to the Xoch and away north. You go on down hill and the first big clearing you come to is Chipal, about four or five leagues from Cunén and about the same height as Cunén above the sea. In Chipal you have hills all around you. You seem to be down in a deep bowl. The bowl looks as if it might be a thousand or fifteen hundred feet deep and a league across the top. The bottom is cleared and the clearings go some distance up the sides. Then woods, all round, up to the sky. But the amphitheatre of hills is not really closed. I suppose it is something of a horseshoe shape, with the opening towards the northeast, the opening being a deep, winding ravine, that you cannot see down. In the bottom of the amphitheatre, of course, there is a river flowing that goes out through that ravine.

If you look at the Chipal sheet of drawings [Plate XXVII] you will see in my sketch of the situation that the ruins are not near the river or bottom of the amphitheatre, but close to the northwest side, almost overhung by a mountain ridge. A little neck of ground runs out to join a foothill; and the ruins are on that neck. The near end of the ruins, the left hand end, on the paper, is at the foothill end of the neck. The far end is the ridge end, and the terraces or platforms at that end are made on the rising ground where the neck springs up towards the ridge. The whole length of the ruins, as you might discover by scaling, is about one hundred and thirty metres.

IDEA
SO FAR AS VISIBLE
OF A
GROUP OF RUINS
IN
CHIPAL
PROVINCE OF KICHÉ
GUATEMALA

SKETCH OF THE SITUATION



EQUILATERAL PERSPECTIVE
LOOKING ABOUT WEST BY SOUTH

SCALE ON THE AXES
3 IN 1000
0 5 10
METRES

— MORE OR LESS CERTAIN
- - - " " " UNCERTAIN—CON-
JECTURAL OR REPRESENTATIVE

The ruins, and the neck of ground they are on, are in the middle of a rough pasture, very uneven ground all over and running off into bush. And the ruins themselves, from the outside, look simply like a clump of bush. When you get inside, however, you see that they are not completely choked with bush like the Xoch ruins. The principal yards and wide places are fairly clear—the cattle keep them clear—and the grouping of things, the general idea such as my drawing is meant to show, is fairly visible; if not exactly visible as a whole, it is easy to put together from what is visible.

But nooks and corners and passages are packed with bush; and so are the tops and upper parts of things where the cattle do not get. For instance, the tops and upper parts of the platforms *ix* and *x* and of *xii* and *xvi* are all bush and the pyramid *v*, and other things. And everything, of course, is covered with earth and rubbish. And in Chipal there is a more troublesome obstacle than either bush or rubbish, and that is the modern stone fences with which the ruins are disfigured and disguised. The owners have made use of the ruins in past times as a cattle pen. In all that part from the pyramid to the terraces, the owners completed the enclosure by joining ruins together with stone walls—not stone and mortar but piled stone fences, and they not merely joined ruins but overlaid them, raising their height, or making them steeper, or plugging up stairways, or what not. And now, when you come on stone work, especially about the outside and covered as it is with bush, you cannot tell without a great deal of clearing and examination what it is you are looking at, whether it is ancient or modern, or where the ancient begins and the modern ends. It is mainly for that cause that the conclusion of various walls and platforms along the outside is left indeterminate in my drawing. And the worst of it is that the stone for the fencing was taken from the ruins. The owners are not the people to have any compunction about destroying ruins. Quite the contrary. The owner of the place is a Spaniard, Plácido García. They were farmers in Spain and they are farmers again in Guatemala; very decent quiet people, but the notion of preserving ruins would never occur to them.

One group of ruins in Chipal, not the ruins of my drawing but another group, the Garcías used as a quarry. They have built a tidy little three-room cottage that they are very proud of with the stone they took. The ruins of my drawing were not used for the cottage because the others were closer at hand; but the ruins of the drawing were used, as I say, as a cattle-pen, and the owners patched them up for that purpose with any handy stone they could dislodge. The ruins are there to be used, in the owner's opinion; and it would be a shame not to use them.

Besides the destructive use they have made of the ruins, these Garcías have done some haphazard destruction in the hopes of finding buried treasure. Every Spaniard seems to be born with the idea of buried treasure—the treasures of Mexico and Peru. They never quite get over the idea. When a Spaniard sees one of these Indian ruins, his first thought is, "Whereabouts is the treasure?" And if it were not so much work, he would instantly scatter the ruin to find the treasure.

If you look at my drawing, you will see that in the far square, at each side of the block *xiv*, there is a row of three little pillars sticking up, the middle one round

and the other two square. Now, on the ground there is almost nothing to be seen of those little pillar things except the foundations. You do not see them sticking up. I have represented them as having some height because old García, who showed me over the place, told me that such had been the case before he smashed them. He smashed them, he told me, because it was as easy to smash them as not and there was always the chance of finding the treasure—the money, as he called it in his simple language. And he kept pointing out to me what he considered to be likely spots. Fortunately, these people have not the least knowledge of likely spots and the ruins will take a great deal of battering, too much battering for the owners to think of attempting; and in fact, now, they do not think of it.

Figure 2 gives you an idea of the actual state of things in what I have been calling the far square, or far yard. You are standing somewhere about the near corner of that square, about in the place that is hidden by the top corner of *x*, and you are looking towards the stairs. You can see plainly the place of the right hand bottom stairs filled with a stone wall to keep cattle in. The affair in the left foreground, covered with bush, is the altar—marked *xiv*. In the rubbish on the ground, you can see nothing, not even the foundations, of the three little pillars or pedestals that were smashed as possible treasure boxes. But the round white thing you see, with a couple of short legs or feet, stood originally, according to García, on what is represented in the drawing as the round pedestal. That round thing with feet is made of plaster, or rather of stone and mortar plastered over. It is so broken and battered you cannot be sure what it was. It might have been a basin or cistern; in fact, the Garcías called it the font. They call all that part of the ruins the church, the pier *xx* being the high altar.

Figure 3 shows you what you could see of the box affair marked *vii*, the same sides of it as the drawing represents. The Garcías call that the castle. There are certain ornaments, I suppose them to be, stuck on the parapet like crenellations and you can see that some of them have holes through them, which struck the Garcías' fancy as loopholes for shooting through. The box inside is half choked with plaster and mortar rubbish. I have an idea that that plaster and mortar rubbish is the remains of a plaster and mortar image that stood in the box. The box was a shrine. There is a box just like it—or very much like it—in the Xoch, with undoubtable remains of plaster images about it. What the drawing represents as the small block *ii* would seem to have been the pedestal of a plaster image or of some plaster thing.

The photographs in Figures 3 and 5 show you nearly all the stone work at the ruins that a photograph could give you any view of without a great deal of clearing. In some places there is a good deal of plaster left on the stone. You can see it in the picture on the face of pier *xx*, and all over the box *vii*. And the floors are plaster. At least, the whole yard from the pyramid to the terraces has a plaster floor, though mostly covered over with earth.

The group of ruins that the owners built their cottage from is to the west of the ruins of the drawing and within hailing distance of them. It was in that other group of ruins, or in the comparatively small part of them that was demolished for the cottage, that nearly all the pottery and things I spoke of were found. Those ruins are not on any flat piece of ground, like the others, but on a steep slope, the

slope of the ridge itself. They are so lost in bush, now, that you cannot make out what they are like exactly. But it is plain they are something quite different from the ruins of the drawing. As you might expect from the nature of the ground, there is nothing like courtyards or aisles; nothing, in fact, adapted to public ceremonies, nothing even that you would call a platform. What there is seems to be a number of cubes or blocks of masonry, higher than a man. The blocks are close together and seem to form two or three tiers on the hillside. The blocks put me in mind, somehow, of those oven graves of New Orleans, only these Chipal blocks are rather bigger things. There is a great deal of plaster about them and they are more or less ornamented in simple ways. In front of one of them, there are remains of plaster statues or images that the Garcías threw down on the chance of finding the money under them.

The pottery stuff, or the best part of it, was come across in a hole or vault—an oven, the Garcías call it—not inside, but underneath one of the blocks. Old García told me about their making the find. He and his son it seems, were there. The son was quarrying and suddenly tumbled into a hole. Then he shouted to his father and immediately began to hand out pottery. They had struck the money at last. And they put their hands into the pots and found only a few beads or bones.

I spoke by chance of the New Orleans graves, but I have an idea that a graveyard of some sort is what those block ruins may be; graves of important persons, perhaps, priests or others, who in life had something to do with the goings on at the ruins of the drawing. That would make those block ruins a very likely ground, I suppose, for the sort of buried treasure that archaeologists are after.

Besides the two principal groups of ruins in Chipal, there are various small outlying ruins. And there is a cave of some interest. The cave is near the ruins, but lower down. In my sketch of the situation, there is a small stream represented as starting near the ruins. The stream comes out of the cave. The entrance to the cave is not where the water gets out, but a few feet higher on the hillside. The entrance is low; you have to crouch. When you get in, you see a big pool of clear water below you, with a sandy bottom, a fine place for bathing on a hot day. The cave is not a big cave, ten metres high perhaps and two or three times as long. You get down to the water by a flight of stones stairs—twelve or fourteen stairs. The entrance, low as it is, is made still more inconvenient by a stone about the length of a man lying lengthwise in the entrance on the floor. The stone may be a natural projection of the floor, but it struck me there was something artificial about it. The entrance is not only low, but narrow, and at each side of it, where you go in, there is a rude human figure about half a metre high or so, sketched on the face of the rock.

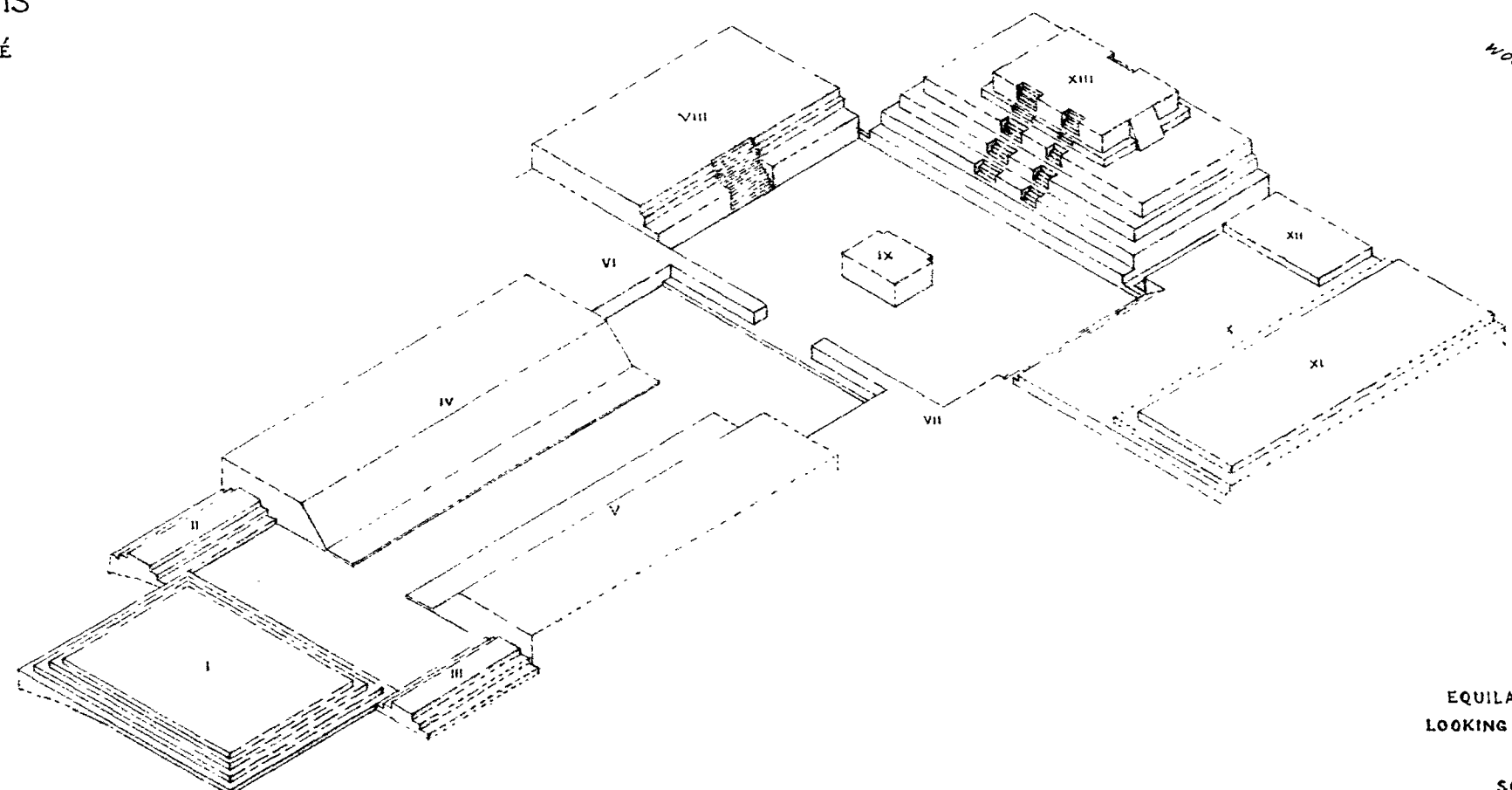
Chipal to San Francisco is down hill two or three leagues on a bad road. In a general way you follow the Chipal River, which you cross twice. On the other side of the river from the ruins, looking across the ravine, you see a few Indian cabins in a clearing and here and there a tree of the forest left standing. From that point you go down again to the river and cross back to the side you started on, the left side. You are then in San Francisco. Just below the crossing, the Chipal River joins the Chajul River from the west, so that you are between the two rivers.

The place of the Chipal ruins is about seventeen hundred and fifty metres above the sea. San Francisco is about eleven hundred and consequently a different climate. You can sleep under a sheet in San Francisco when you need a blanket in Chipal. The thing about San Francisco which has made it a centre of settlement—both now and I suppose anciently—is the junction of the rivers, or rather, the land at the junction, a little fertile flat. Hills rise up steep all around. The owner of San Francisco has turned a great part of the flat between the rivers into a canefield. He makes brown sugar and sends it up to Nebaj on mules. This owner is an Italian subject, Mr. Peter Brol, a very pleasant, sensible man. He does not care a button about ruins or antiquities but understands that other people may, and if they wish to come and explore the ruins on his land, he will be happy to see them come, and if they find any buried treasure they can have it. He even offered to give the men that might be needed. But he probably changed his mind on that point when he understood that the exploration would not be an affair of days but of months.

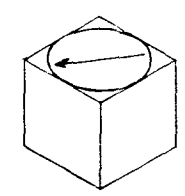
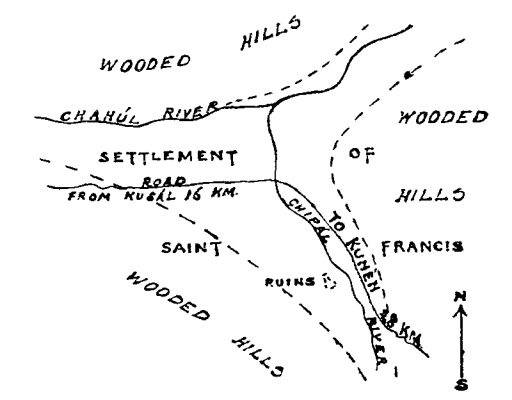
The San Francisco ruins that I send you the drawing of [Plate XXVIII] are in the canefield on the flat. They were the only ruins I could measure in San Francisco, but they are not the chief ruins. The chief ruins are on the big hillside to the north, on the far side of the Chajul River. They are in a northwesterly direction from the canefield ruins and not far off, about twenty minutes' walk by the actual round-about path. Those hill ruins are on the hillside but they do not stand on a slope. There is a wide shelf in the hillside not far from the bottom, and the ruins are laid out on that shelf about fifty metres above the level of the flat. The shelf is an old clearing and has been used as a pasture, but it is overgrown with bush. I could not see over the ground and could not form an idea of the arrangement of the ruins, but I can say that the extent of ground they occupy is much greater than that of the ruins of Chipal. The ruins seemed to be composed principally of platforms, and the typical platform, not oblong but rather square, eight or ten metres on a side, and the sides vertical. Low blocks of masonry, in fact, are what those platforms are, sometimes two story platforms, an under block and a smaller block on top, but nothing very high, nothing that would be more than, perhaps, twice the height of a man. Some of the walls had the plaster still on them; and there were remains of inserted plaster images or whatever the things may have been. As I could not see the arrangement of the ruins I could not be sure that there was an arrangement, but probably there is. At least there is to this extent, that the blocks that I took the bearings of seemed, as near as I could tell, to be all on the same bearings, all parallel.

On the same hillside as those ruins but a good deal further west, about half an hour's walk or more, there are some other ruins. These other ruins are at a little higher level than the first, and the shelf they are on is a comparatively small place. It was cleared of woods at some time in the past, but it is tall bush now, getting to be woods once again. It is impossible to see the ruins except in one or two spots, not on account of the shade but on account of the depth of vegetable rubbish that lies over everything. The ruins do not take up much ground; there is not much ground for them to take up. At one spot, in fact, the ground was not enough; the edge of the shelf is built out with a high wall under it down the bank.

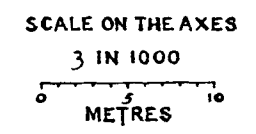
IDEA
 SO FAR AS VISIBLE
 OF A
 GROUP OF RUINS
 IN
 SAINT FRANCIS
 PROVINCE OF KICHÉ
 GUATEMALA



SKETCH OF THE SITUATION



EQUILATERAL PERSPECTIVE
 LOOKING ABOUT EAST BY SOUTH



————— MORE OR LESS CERTAIN
 - - - - - " " " UNCERTAIN—CON-
 JECTURAL OR REPRESENTATIVE

It is at these ruins that the stone and mortar idol is that is shown in Figure 1. The idol is seventy-two centimetres high, and forty-three centimetres is the width of the face. It is on top of a ruin heap of some sort and sits loose on whatever is under it as if it had been shifted, perhaps shifted by the Indians who come and burn incense and candles to it. At the edge of the bush, to the west of those ruins, there was another image of the same sort but much smaller lying on the ground. Somebody had tried to carry it off to sell, I heard, but had found it too heavy.

The ruins in Plate XXV, that is, the canefield ruins, are in the flat on the left hand side of the Chimal River and close to the river. The length of them from end to end is about forty-five metres. For the purpose of my measurements these ruins were reasonably visible, but they were not visible for the purpose of taking a picture. They are treated as part of the canefield and were covered with waving cane. The picture in Figure 6 was taken from the yard at the base of platform *i*. You are looking straight at *xiii*, between *iv* and *v*. You cannot see much but the cane. In my drawing, you will notice that the conclusion of some platforms, especially on the right hand side, is not even conjecturally indicated but left indeterminate. It is not the cane that is to be blamed for that, but the fact that the place has been cultivated for a long time. The right hand side as you look, the southwesterly side, is the hillside of the ruins; the other side is the river side; and with the wash of rain and the continual tillage of the ground, the ruins have acted as a dam. The earth has filled up on the hillside to about the level of the platforms; the bottom of them, on the outside, is buried; and the top lines being much obliterated, you cannot tell now, without digging down, where the outside was. On the other side of the ruins there is less of this uncertainty. The wash of earth is naturally *away* from the ruins and on that side there are places where you can even see the foundations. The drawing represents that at the bottom of platforms *i* and *ii*.

There are traces of plaster images or something of the sort at the altar, marked *iv*, and of an inserted plaster image, at the middle of the outside bottom step of platform *i*. And the yard is paved with plaster, at least where I dug for it; and there are many patches of plaster still left on the walls. All horizontal surfaces are covered with earth deep enough to plant cane and are much disturbed by planting; whether they were all plastered originally, I could not tell.

Figure 7 is looking more or less in the opposite direction to Figure 6. It is taken from the top of a stump in the cane at a distance behind *xiii*, which appears as a mound with cane on it. The big hillside ahead of you is the hillside of the other ruins. The place of the westerly ruins, where the idol is, is away to the left on that hillside and not in sight from the canefield ruins. But the easterly hillside ruins, if it were not for the bush about them, would be in full sight. If you stood on top of *xiii*, those ruins would be dead ahead; that is to say, in looking at them you would be looking over the middle of platform *i*. The canefield ruins seem to be aiming at those on the hill. It is a curious coincidence that the bearings I noted for the hill ruins—about northwest by north one way and northeast by east the other, or the opposites of them—should also be the bearings of the canefield ruins. The canefield ruins are not only aiming at those on the hill, but are laid out on parallel lines with them.

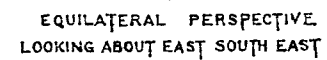
Leaving San Francisco, the road turns sharply to the west. In getting to San Francisco, you have come down the Chipal River to its junction with the Chajul River. Now you have to go up the Chajul River. San Francisco is the end of riding roads down stream. You go west now and go up; and in doing so, you leave the woods behind you. San Francisco is a place like the Xoch; it is on the fringe of the woods. Not that the country you are getting up into, however, is a bare country; it is not; you still see plenty of woodland all about, especially in ravines and on steep places and on hilltops, sometimes large tracts even of wood. But the continuous forest is gone. The clear part is the continuous area. It is a settled country. It is the country of the people who speak Ixil. I said that there was a wedge of forest between the settled parts of the Alta Verapaz and the settled parts of Quiché. The language of the east of that wedge is Kekchí; on the south, two languages, Pokomchí and Kichechí; and on the west, Ixil; all Maya languages and the two on the south closely related to each other comparatively, but all mutually unintelligible. The Ixil country takes in the villages of Nebaj, Cusal and Chajul, also the hamlet of Ilóm, two days to the north. And Ixil is the language of the forest settlements on its own side of the forest, including Chipal and San Francisco.

The ruins of Chichel are well into the settled country. Coming out of San Francisco, up the ravine of the Cusal or Chajul River, you have the river on your right. The far side of the ravine is woods. About two leagues up, you catch sight of a waterfall in those woods. It is the Chajul water. It falls down into the ravine and joins the Cusal water in the bottom. You go on a few steps after seeing that waterfall and you come to a gully, the gully of a tributary brook. You go down and cross the brook, and go up on the other side and you find yourself on a sort of high promontory, a promontory of land in the angle between the brook and the main stream. The gully is behind you and the valley of the Cusal River ahead. The place is called Las Galeras (The Sheds). There are one or two tumble-down sheds at the side of the road. General Somebody and his forces at the time of some revolution were captured in those sheds, or were not captured; I have forgotten the story. But the high narrow promontory would be a good place for posting a lookout. From there up, the valley of the Cusal water is no longer a ravine; it is a comparatively wide valley, and looking up that valley you can see in the distance on the far side, not the ruins of Chichel but the slopes among which those ruins are hid.

The ruins are about a league or a league and a half from Las Galeras. There is no riding road to the ruins from anywhere, but there is a footpath from Las Galeras to Chajul and that path goes close to the ruins. That was the way I took to get to them. I established myself in Las Galeras, not in the general's sheds but in a little white-washed house close by, that happened to be empty, and engaged a halfbreed on the place to show me the way to Chichel. The ruins of Chichel are about fifteen hundred and fifty metres above the sea. You will see by my sketch [Plate XXIX] that the ruins are situated on a shelf or table of land overlooking the Cusal River valley. On the side away from the valley, the shelf is partly split off from the ground about it by a gully with a small stream at the bottom. The shelf is made a peninsula or promontory on the side of the valley. It is a flat-topped promontory with steep sides. The sides are wooded, but the flat top has long been

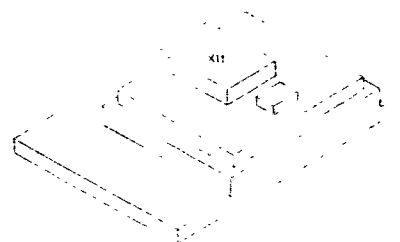
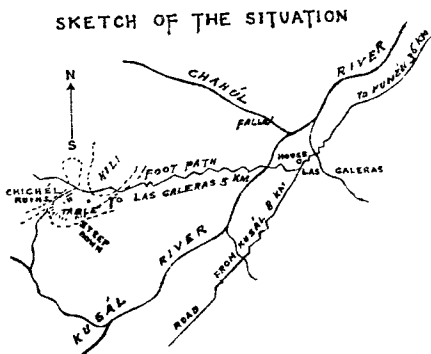
RUINS OF CHICHEL

IN THE DIRECTION OF THE ARROW
(ABOUT EAST BY SOUTH) AND AB-
OUT A HUNDRED METRES AWAY,
THERE IS A PYRAMID, ABOUT TEN
METRES HIGH.



SCALE ON THE AXES
3 IN 1000
0 5 10
METRES

_____ MORE OR LESS CERTAIN
 - - - - - " " " UNCERTAIN-CON-
 JECTURAL OR REPRESENTATIVE



a favourite place for cornfields and the growth that covers it is mostly only weeds and young brush. As soon as you see the place, from above, you see that there are mounds on it which look as if they might be ruins. You can see that much in Figure 8. I took it one evening as I was leaving. It is looking west over the promontory and consequently more or less opposite to the direction from which you are looking in my perspective drawing. The Cusal River valley is on your left in this picture but not seen in the picture. The high hills on the right and the wooded country under them are all on the far side of the gully. The line of the gully is hardly distinguishable. The long parallel shadows on the flat are mainly the platforms *ix* and *x*. Further off you see *xiii*. The clump of woods, beyond, is at the tip of the promontory. Under those woods there are some small outlying ruins. The biggest single object in the ruins is not in the picture at all, but behind you, rather to your left and rather higher up. That object is the pyramid, the direction of which is pointed out in my drawing. The pyramid is off to one side from the main body of the ruins and stands on higher ground. It is about at the junction of the promontory with the hillside behind. If it had not been for my guide, who had once lived at Chichel, I should probably never have suspected the existence of that pyramid. The pyramid, unlike the other ruins, is covered with a tangle of bush and looks like any other small hill. I could not measure the pyramid; I could not even get a decent sight of it. But I estimated that, on the side I climbed it, it was about ten metres high. We chopped our way to the top, and on top found a stone and mortar idol, very like the San Francisco idol but about two-thirds the size.

The length of the main body of the ruins from the back of *xii* to the far end of *i* is a little over one hundred and twenty metres; the width, including what is visible of *xi*, is about eighty-five metres. In the perspective drawing, the near side of the ruins, or the northerly side, is the gully side. The brow of the gully is indicated. The gully, along there, is not far from its beginning and is not deep—ten metres or so. The ruins come out to the very brow. Even where there are no platforms, the brow of the gully is defined by a line of stonework. The stonework is carried down for a short distance as a facing to the steep slope of the gully. Whatever the age of the ruins may be, they are not older in that part than that little gully. You will notice that along the brow of the gully there is a middle stretch left indeterminate. It was covered with a thick mat of tough brush and I could not make out just how the stonework went. Parts of the platforms *x*, *xi* and *xii* are also left indeterminate. In their present state, they simply slope off into the surrounding ground and I could find no stone corners or anything to conjecture how the things ended.

On the right hand side of the box *viii*, you get out of the yard by a couple of stairs. On the left hand side, at either end of *vii*, you get out by a short slope. That is how it is on the ground and I have represented it so on the paper. I have represented the slopes as mere slopes, inclined planes, because that is all I could make them out to be. But you will understand that the whole place is covered with sod and has been tilled over and over and trodden by cattle, and it might very well be that those slopes were the remains of stairs and should have been so represented. That passage between *vii* and *ix* is a place I shall not forget in a hurry.

I can say that it took me a day to measure the width of it. I was at Las Galeras one morning running over my notes of Chichel. I supposed I was done with the place and I was about to start away. They were saddling the beasts. All of a sudden, I gave the order to stop and take off the saddles; I had just found that I had not written down that measurement. I might have worked it out somehow, by additions and subtractions, but I wanted to satisfy myself about that particular passage and that took another day.

The thing marked *v* is simply a slab of stone standing on edge. The stone is not dressed but the edges and sides are about parallel. There is not much doubt in my mind but that the stone has fallen down, that originally it stood on end, and that it stood on top of the round pedestal stone in *vi*. But the case is like that of the inclined planes. I have represented the actual state of things though it may be misrepresenting the idea of the ruins. Even if I ventured to set up the stone, on paper, I could not conjecture in what direction it faced. I might add something of the same sort about two blocks on top of the compound platform *xii*. The front block, the big one, has some traces of having perhaps had a smaller block on top of it—some superstructure. And the back block was a pedestal for something; you can trace the base of a plaster image on it—marked *viii*, which seems to have been the place of some plaster idol affair. It is choked up with plaster rubbish and I could not exactly see what the box was shaped like on the inside. The inside drawing is merely representative. And on the outside there are ornaments and details not shown; in particular, some narrow horizontal mouldings or ledges running round. And my guide told me a curious thing. On a certain ledge or shelf at the back of the box, that is to say facing *iv*, there used to be a row of smooth balls of plaster or mortar. And they were attached with mortar to the shelf where they stood. The balls were bigger than a man's head and they had something the shape of a man's head. When my guide lived at the ruins and had a cornfield on them, he had often noticed those round ornaments, as he considered them, and one day he had the curiosity to break one of them off from the shelf. And he was surprised to find that the thing was not nearly so weighty as it looked. Evidently it was hollow. And with some trouble, he broke it open with his cutlass and found, inside, a human skull. The skull was encased in a thick layer of mortar. And so it was with all the other balls. That was a number of years ago. There are now no remnants of those ornaments to be found.

Chichel is not a hamlet; it is simply the place of the ruins. The land it is on belongs to a native, a captain in the army and employed on the President's staff in Guatemala. The land is looked after by the man's brother. The brother, however, does not, or at least did not, actually live at Chichel, but in the neighbouring village of Chajul. I thought I might as well go and look at him. It was not far—a couple of leagues from Las Galeras to Cusal and a couple more to Chajul. It is more or less up hill all the way. Las Galeras is about fourteen hundred metres above the sea; Cusal, a village about the size of Uspantán, eighteen hundred metres; and Chajul, about two thousand. Chajul is a cold, wet place. It is on the south side of a range of wooded hills. If it is not raining, there is a wide view to the south, the basin of country that Chajul and Cusal are both in; and beyond that, a high mountain ridge, the mountain between Cusal and Cunén. But it is mostly raining

or misting. As for the village, it is a mud hole on the side of a hill. It is amusing when you are in one of these places, Chajul or Uspantán or Tactic, to look at the map and see these poor pelting villages put down as important cities. All the signs of life are a knob of drunken Indians somewhere, an occasional draggled-tailed woman with a water jar on her head, pigs and goats going about to keep the weeds down. And yet it happens that this out-of-the-way village of Indians is able to attract travellers in great numbers and from distant places. The dingy dilapidated looking church is a noted shrine, a Guatemalan Sainte Anne de Beaupré. Many miracles are attested. The great day is the second Friday in Lent. Pilgrims are there from as far as Mexico and Salvador. The hovels of the inhabitants are full of strangers. Crowds are camped in the open places under tents and booths. The mud hole has one moment of strange importance. But it is only a moment. There were no crowds the evening I got in from Las Galeras, nothing but silence and rain. I cast anchor in an empty out-building of the church. There was not even a resident priest. I had difficulty in getting supper. My attendant reported, "No supper anywhere." I had to go prospecting myself and finally got supper; but it cost me a dog bite. I was at the door of a house talking—or rather listening—to a woman telling me the usual tale; she was sorry; impossible to get me anything at that hour; come in the morning; and so on; and at that point a dog rushed out of the house barking and got a nip at me before I could turn, and then rushed back to where she came from—a savage bitch that had evidently just had pups. But the interruption somehow changed the lady's thoughts. From that moment, I began to be an interesting person to her and she ended by giving me supper and everything else.

Well, the point is, I saw the Chichel man. He turned out to be the clerk of the courthouse in Chajul and, for the time being, a very influential person. The alcalde, or mayor, being an Indian, not able to read or write, and speaking very little Spanish, and drunk after ten o'clock in the morning, he has to go very much by what the clerk tells him. The clerk is the grand vizier, a man of about thirty. He gave me to understand he was not making much out of his job and had thoughts of throwing it up and going to live at Chichel.

I should mention before I finish with this region that there is some antiquarian work to be done at Las Galeras. Not long ago a quantity of interesting pottery was found there. I had great hopes of getting it, but I found the owner of the place had gone and taken the pottery with him, and furthermore, that he was no longer the owner. He had just sold out to the present owners. The pottery that was found had been in one small mound that was pointed out to me. It is on the top of the promontory as I have called it, a few steps from the house I lodged in.

The direct way to Nebaj is by Cunén. You go through Cunén and branch off to the right, as the diagram shows. You get over the Cuchumatán top through a gap. Cunén to Nebaj is about five leagues.

Nebaj is about the same height above the sea as Chajul but not nearly so rainy, and the situation is more inviting, a fine tract of rolling country sheltered by mountains. The village of Nebaj is the most important place there is between San Cristóbal and Huehuetenango, and it is the only place north of the Cuchumatán line, in those parts, that has [1913] a telegraph wire. Years ago, when I first visited

Nebaj, it was a different place from now. There were very few natives in sight and they were evidently in some awe of the Indians. The massacre of Solomá was still in people's minds. A foreigner was a rare visitor. There was an Italian priest who took me in and roasted a fowl for me with his own hands. For forage and guides and so on, I had an order in my pocket from the governor, in case there was anybody who could read it. The priest was a Neapolitan and I remember he remarked it was a long way from Naples to Nebaj. But Nebaj today is quite a civilized place: whitewashed houses, natives with collars and neckties, the alcalde no longer an Indian, a telegraph station, a shop that sells penknives as well as hoes and cutlasses, and above all, an unceasing coming and going of labour contractors and plantation agents getting out gangs of Indians for the Pacific coast. And there is rum. The place stinks of it. The Indians are drunk from morning till night. There is a distillery in Nebaj. The black sugar, that comes up from San Francisco and other places where sugar cane grows, is melted back into syrup in Nebaj and distilled into rum. But that rum is not enough. Rum has to be brought in from other places. An Indian in the woods, or on his land, is not a drunkard. He could not be. If he had any rum, he would drink it up at once and be done with it. But in town he has no chance. In the days I was in Nebaj you could hardly see an Indian on the street after nine o'clock in the morning who was not already dizzy. I used to think that Chichicastenango was the drunkenest town in the country, but now I think it is Nebaj. My plans at Nebaj were upset by rum. There are two ruin places that I know of that are to be got at from Nebaj and I did nothing at either of them, and one of them I never even saw. The Indians I was going to take were never sober.

The ruins that I saw may be called the ruins of Nebaj. They are on the southwest side of the town at about ten minutes' ride. They occupy a small table-ground. They seem to consist mainly of a group of platforms: long, high mounds with flat tops and sloping sides. Those ruins do not resemble any that I have so far described. What they resemble is a group of ruins in Xolchun, the group of platforms that I have numbered *xxiv* to *xxix* [Plate XXX]. The Nebaj platforms, like those of Xolchun, were covered with sod, but in Nebaj there was no stone peeping out from the sod, no signs of stairs up the sides of the platforms, and, whether the modern inhabitants have robbed the ruins of stone or whatever may be the reason, there were no walls or masonry visible anywhere in the ruins, nothing but those big green platforms. At a little distance from the platforms, however, there was at least one mound of another sort. It was a small round mound, four or five metres across, made of earth. It was dug into some years ago by a couple of treasure hunters. They dug a deep pit in it. They found no gold or silver, but they found some pottery¹ which is now, I believe, in Guatemala City. This is a round, hollow, smoke-blackened object, apparently the lid, or detachable top of something. It represents, coarsely, the head of probably a cat-beast, with out-

¹ At Nebaj was found in 1904 one of the finest examples of ancient Maya pottery vessels. This has been reproduced in Plates XXIX and XXX of the Museum's publication, *Maya Pottery*, Philadelphia, 1928. It was fully described by the late Eduard Seler under the title *Ein Hieroglyphengefäß von Nebaj in Guatemala* in his *Gesammelte Abhandlungen*, III, 718-729, Berlin, 1908. The vase is now in the Fenton (formerly Fleischmann) Collection, London.—J. A. M.

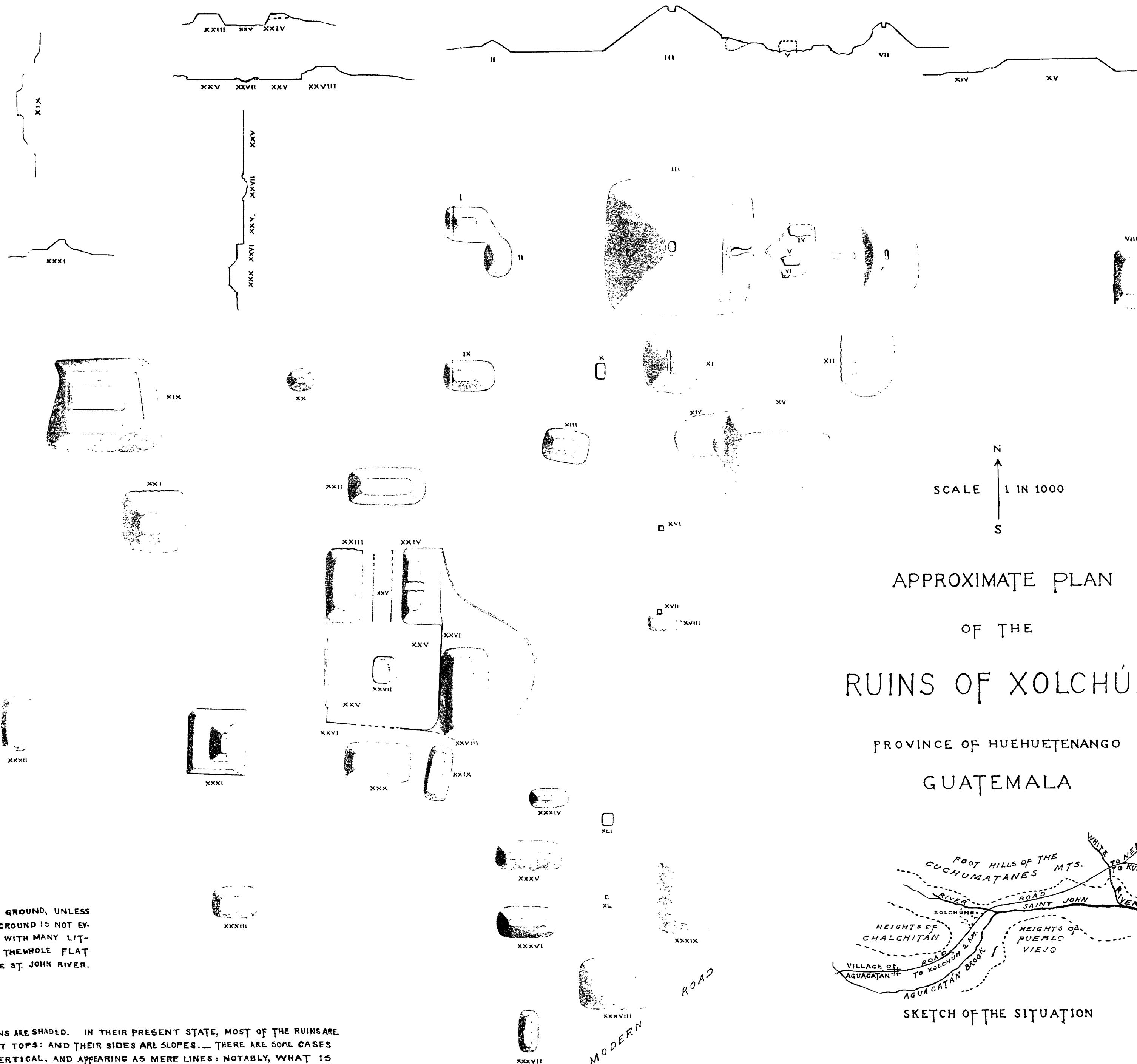
APPROXIMATE HEIGHTS

RUIN: METRES:

I	2.8
II	3.8
III, TOP	16.
" EAST PLATFORM	3.5
IV, V, VI	4. (ABOVE EXCAVATION)
VII	9.
VIII	3.
IX	2.7
X	0.8
XI	5.5
XII	4.
XIII	1.5
XIV	1.
XV	5.1
XVI	0.7
XVII	0.7
XVIII	1.
XIX, LOWER PLATFORM,	5.
" UPPER PLATFORM,	2.3
XX	1.8
XXI	4.4
XXII	1.5
XXIII, BOTTOM PLAT.,	0.2 (FROM XXV)
" TOP PLATFORM,	4.3 (FROM BOTTOM)
XXIV	SAME HEIGHTS AS XXIII
XXV (FLOOR OF COURT)	0.0
XXVI (PLATFORM ROUND XXV)	2.3
XXVII, BORDER REMNANT,	0.5
XXVIII	2.3 (ABOVE XXVI)
XXIX	1.2 (ABOVE XXVI)
XXX	2.9 (ABOVE XXVI)
XXXI, LOWER PLATFORM	2.1
" UPPER PLATFORM	3.7 (ABOVE LOWER)
XXXII	2.
XXXIII	1.9
XXXIV	1.
XXXV	3.
XXXVI	3.
XXXVII	1.8
XXXVIII	3.7
XXXIX	4.1
XL	0.3
XLI	1.4

HEIGHTS ARE TAKEN FROM THE GROUND, UNLESS OTHERWISE STATED. BUT THE GROUND IS NOT EVEN. THE PLACE IS A FLAT, BUT WITH MANY LITTLE UPS AND DOWNS IN IT: AND THE WHOLE FLAT HAS A GENTLE FALL TOWARDS THE ST. JOHN RIVER.

SLOPES ON THE RUINS ARE SHADED. IN THEIR PRESENT STATE, MOST OF THE RUINS ARE MERE MOUNDS, WITH FLAT TOPS: AND THEIR SIDES ARE SLOPES.— THERE ARE SOME CASES OF SIDES CONSIDERED VERTICAL. AND APPEARING AS MERE LINES: NOTABLY, WHAT IS LEFT OF THE RETAINING WALL OF XXVI, ON THREE SIDES OF THE YARD XXV; SEE THE PROFILES OF XXV, XXVI, XXVIII. ALSO OF V, XIX, AND XXXI: AND THE TABLE OF HEIGHTS.



APPROXIMATE PLAN OF THE RUINS OF XOLCHÚN

PROVINCE OF HUEHUETENANGO
GUATEMALA

SKETCH OF THE SITUATION

standing eyes, and with the mouth wide open. There is a wide opening in the bottom, or throat. The thing sat on its rim or collar. Evidently smoke, or fire, was meant to rise from some vessel underneath, and pass through the open throat, and come out of the mouth. It stands nine and one-half centimetres high, with a bottom diameter of eleven centimetres. I found one object which was the result of some subsequent poking in the same pit. There was nothing valuable found then.

The ruins that I did not see were some stone ruins at a place called Xolkil, or rather Big Xolkil. There is a big and a little Xolkil. Big Xolkil is a hamlet northwest of Nebaj, five or six leagues off. There are lofty precipitous mountains in that direction and Big Xolkil is at the foot of them, on the Nebaj side. The alcalde of Nebaj very obligingly placed three or four Indians at my disposition to go with me to the place as guides and choppers and baggage carriers. There is no riding road to the place. But I never got there. I never started. I made my preparations over night but in the morning the Indians did not turn up. The alcalde sent out to find what the matter was and, after some hours, it appeared that the men had got too drunk the afternoon before to get ready for the trip and were still in no state to get ready. The alcalde thought the best thing then was to appoint other men for the next morning, and they were notified. But the morning came and not the men. By and by, one man did come, but too late to start; and all his preparations for the trip appeared to consist of half a bottle of rum. He was slammed into jail; and so were the others, one by one. Before evening the alcalde had them all in jail. But that did me no good. I thanked the alcalde and told him I had decided to go on to Xolchún. I would come back to Nebaj at some more favourable time. Probably I had struck the place at an especially bad moment. The plantation agents were at the height of their activity, scattering money, advance pay for work, and every Indian was able to buy rum. The rum business and the coffee business work together in this country, automatically. The plantation advances money to the Indian and the rum seller takes it away from him and the Indian has to go to work again. Work leads to rum, and rum leads to work. It does not matter that the work happens to be plantation work. It might as well be excavating ruins. But to get results from the system, the rum and the work have to be in different places. That is the moral I drew from my experience at Nebaj.

Nebaj to Xolchún is southwest. It is about seven leagues, up one side of the mountain and down the other. The gap where you cross the top is not the highest point of the road, it would seem. According to my barometer, the highest point of the road, about twenty-five hundred metres, is at a point that you climb to on the southern face of the mountain, before going down hill for good. The lowest point is about sixteen hundred metres, at a point between the Rio Blanco—so called because it is a foaming torrent—and the San Juan. From Cunén to Xolchún, on the direct road, there is no such great up and down; there is no mountain to cross; the distance may be about ten leagues. Xolchún is so far west, however, that for anybody coming down from abroad to look at it, the shortest way would be to take the railway from Puerto Barrios to Guatemala and thence to San Felipe,

south of Quexaltenango. From San Felipe you can drive to Huehuetenango;¹ then hire a mule to the ruins; it is only five or six leagues; you can do it in four hours easily.

Xolchún is about seventeen hundred and fifty metres above the sea. It is in a warmer country than places of the same height on the other side of the Cuchumatáns. But what strikes you most, looking down on the Xolchún and all the neighbouring regions, is that it is a bare, desolate, dry-looking country, and a sunshiny country. It is not really baked by the sun. I was a good deal hindered in Xolchún by rain; but coming from the woods, this southern country has a brown, sunbaked look. It looks hotter than it is. In one important respect, Xolchún is a place like San Francisco. It is a flat at the confluence of two rivers. But the Xolchún place is much bigger and more open. I send you a plan of the ruins of Xolchún [Plate XXX].

The flat of Xolchún you may imagine as, roughly speaking, triangular, bounded on two sides by the two rivers and on the third side by those heights that I have marked in the sketch as the heights of Chalchitán which are about the same height as Pueblo Viejo. The Chalchitán heights have the Aguacatán River valley on one side and the San Juan valley on the other, and the two valleys join in Xolchún. The San Juan River, or at least the main body of it, comes out of a hole in the ground, a short distance above Xolchún. The Aguacatán brook, which is a smaller stream, is much longer. A little beyond Aguacatán you cross that brook going to Huehuetenango. Aguacatán, which is a village about the size of Uspantán, or smaller, and consists mainly of one street, is about half a league from Xolchún. Xolchún and Aguacatán are included in what is called Chalchitán. Chalchitán is the whole stretch of land on the left side of the brook, from the San Juan River up, both bottom land and heights. The language of Chalchitán and the surrounding country is related to all the neighbouring languages, but distinct from them. Indians of the other languages cannot understand the Chalchitán language, and vice versa.

Xolchún is not a village nor a hamlet even. It is simply the place of the ruins. But there are people living about and the place is all cleared and farmed. The ruins themselves are a scene of cultivation. The ground amongst them is all corn-fields and beanfields and canefields. Tillage is carried up to the base of every ruin and the tops of platforms are tilled. Only the sides escape. And the tillage of the ground has evidently gone on for a long time. There are low stone fences here and there, dividing the ground into fields. And where the fence can act as a dam, where the fence lies across the drainage of the flat, you find the ground on the upper side filled up to the level of the fence. And the ruins themselves have acted as dams. The ground is nearly always a little higher on one side than on the other and the exact height to be ascribed to a ruin is a matter of judgment. There is almost no bush to bother you. The only place for bush is on fences and on the sides of mounds. And there is not much bush on the mounds. There are

¹ Travelling conditions have greatly bettered in Guatemala in the seventeen years since Mr. Burkitt wrote this report, and with this change has passed some of the provinciality of the country towns—and a little of their charm. In April of this year, 1930, an ultra-modern electric railroad from San Felipe to Quexaltenango was inaugurated, the "Ferrocaril de los Altos," and Huehuetenango, like all the major cities of Guatemala, can be reached by, and is lamentably familiar with, the automobile.—J. A. M.

too many goats and sheep. Wherever there are no standing crops, goats and sheep are let about and very little bush can make head against them. There are nettle trees and prickly pears on the ruins, and here and there, there may be a formidable thicket of them. But on the whole, the ruins are clear of bush. They are hidden only by the sod; you can see the artificial nature of them as far off, almost, as you can see them at all.

The general appearance of the place, as I saw it, you can judge from Figure 8. In the centre are the united rivers, the Cuchumatáns on the left and Pueblo Viejo hill on the right; you can just see the water about at the confluence of the rivers, and the greater part of the ruins is in front of you. The picture is taken from the top of the two story platform *xxxi*. The sweep of the whole picture is from a little left of *xxiii* to a little right of *xxvii*. You see the mounds with the tufts of bush on them. The big mound on the left is of course number *iii*. And you see the fields of stubble all about. The yard *xxv* is itself a stubble field, the bush in the middle of it being *xxvii*.

The ruins of Xolchún, as you will find on my plan [Plate XXX], measure about three hundred and twenty-five metres north and south, and about four hundred and twenty-five metres east and west. I have forgotten the measurements of the ruins of Copán, but within the limits of Guatemala at least, it is probable the ruins of Xolchún are much the most extensive that exist. It is a long time since I have seen the ruins of Quiché, but I think you will find they occupy much less ground than the ruins of Xolchún, while, as for the amount of building work in the two places, there is more work at Xolchún in the single pyramid number *iii* than in all the ruins of Quiché together.

It was a long business measuring Xolchún, even in the rough way that I measured. When I set out on this trip, I had no idea of actually measuring ruins at all, much less of constructing plans and perspectives. I had the idea of ruins in my head but no precise notion of what shape my report might take. My notion was that the camera would convey all the visual ideas necessary and that if anything should seem to be wanting, here and there, it could be supplied by talk. I got rid of that notion at the first ruins I tried to photograph. If any ruins had been reasonably clean and in addition there had been a good point to view them from, something might have been done with a camera. But as it was, it was plain that I might photograph the ruins from every point of the compass and talk about them for a year, and as far as the main thing was concerned—the system of the ruins—you would have no more notion at the end, practically, than you had at the beginning. There was nothing for it but measuring and drawing. So I measured and drew. But with a pocket tape for all my surveying instruments, the measurement of so big a place as Xolchún was tedious, especially with raw Indians. I had two or three Indians daily from Aguacatán. I gave them some multiple of a metre to measure with, and they had to learn how to measure. At the end of each length they stuck a cutlass in the ground and they had to learn to stick it at the end and not somewhere within a hand's breadth. And they had to count. When they stuck the cutlass in they had to sing out. I was usually some distance ahead. And they would continually skip numbers; they would sing out "Four, five, seven," or "Eleven, fourteen, fifteen." It bothered them to count in Spanish.

They would say things like "Twenty-eight, twenty-nine, twenty-ten," and then get confused. Afterwards I had them sing out in their own language and the counting improved. They learned, presently, that a distance had to come out the same backwards as forwards. And I believe their errors in the end hardly amounted to one part in one thousand. The tendency, I think, was to diminish distances. It is probable the true scale of my plan is not actually 1 in 1000, but something like 1 in 1001.

Besides the great extent and number of the ruins, there is another peculiarity about them, especially troublesome to a man without a theodolite. The layout of the ruins is not rectangular; at least you cannot depend on its being rectangular. The lines of *viii*, for instance, do not turn out parallel, or at right angles, to those of *xxviii*, or again to those of *xi* or *x*, and so on. In any of the other ruins I measured, you could assume that all the plan lines were either parallel or at right angles to each other. And besides, there is a great deal of symmetry of arrangement to help you. In Xolchún, it is probable that most of the mounds are in themselves rectangles, but in the arrangement of them, there is neither rectangularity nor symmetry to any useful extent. The absence of symmetry, the absence of any simple arrangement, is plain enough to anybody who looks at my plan. But it is not so plain on the ground. I wasted several days, I suppose, tramping up and down, looking for lines of arrangement, simple lines, which I supposed must exist, if I could only see them. My Indians followed me about with armfuls of range poles. If three or four things looked as if they might be in line, I tested them with range poles. But it always turned out the things were not in line, or if the centres were pretty nearly in a line, that line would not be parallel to the side lines, or something of the sort. I used up a great many range poles. I had the mounds looking like hedgehogs, almost, before I was done; but without finding any arrangement such as I was looking for.

It is evident, of course, that there is arrangement. The mounds and things are not thrown about, higgledy-piggledy. For one thing, there are evident groups. And if the mounds, and lines, are not exactly parallel or at right angles to each other, throughout, yet they are usually pretty nearly so, nearly enough to deceive any casual spectator. And the very aberrations, often, suggest intention. But whatever the intentions and arrangements may be, they are not clear enough to be any help in measurement. It is they themselves that have to be discovered by measurement. I have not discovered them. The discovery of them would need exact measurements and I could not take exact measurements; not really for want of a theodolite, however, but because the ruins are covered with sod. There are almost no sharp lines to measure to. Underneath the sod there is stone, stone stairs usually, running all the way round and all the way up, so that the building is more or less like a truncated pyramid, oblong or square, but narrowing in to the top. These stairs would make a great many stone lines to go by, if you could see them. But the stairs are filled with rubbish and covered with sod. The stone work peeps out here and there, but usually more or less ruinous or dislocated and almost never enough of it to establish a line. All you have are things of that shape that you see represented, predominatingly, on my plan. I do not, in the main, pre-

tend to represent stone lines. All that I attempt to represent or locate, as a rule, is the mound, the visible envelope, in which the stone ruin is embedded.

I measured the length and breadth of the mounds, both bottom and top; that is, as near as I could judge the limits, bottom and top. And I took great pains about the direction of the mounds. If there was a fair stone line, I took the direction from that. If there was no acceptable stone line, then I usually took the base line of the mound, if the base line was anything definable; otherwise, the top side-lines, or an average middle line. But trying to be exact about the mounds, as they are, is bound to be more or less lost work. No two people, probably, would agree about the lines or even the visible mound; and if they did agree, they could still never be sure how near the visible surface tallied, or did not tally, with the stone underneath. If you cleaned the mounds enough to survey the stone, and corrected my plan of the ruins accordingly, my opinion is that the position of centres would not be seriously altered, but the mounds would in many cases be rotated. The rotations would be slight. But in tracing the recondite arrangements of Xolchún, those slight rotations would probably be important. My plan is what I say it is: approximate. It could not be anything else. And I hesitated greatly about measuring Xolchún, but it happened that besides the ruins being practically clear of bush, it was a moment when there were almost no standing crops on the place. A more favourable moment might never come; and considering the importance of the ruins, I thought the Museum would be glad of even an approximate plan. In my numbering of the ruins, I do not intend to indicate any theory of grouping them. The numbering winds about, merely in what seemed to me to be as easy a way as any for the eye to pick up the numbers.

The southern part of *xv* is left indeterminate because the mound there is in a state of great ruin or incompleteness and merges indeterminately into the adjacent ground. So again with the southern part of *i*, and the eastern part of *xxxi*. The top of *ii* is not in the middle, because the ground is higher on one side than on the other as you see in the profile. So again with *xxix* and *xxxviii*. *xxxviii* is a mound that has acted as a dam, the ground filling up on the south side. The crooked west base line of *xix* is partly due to ruin but mainly to a wave in the ground. In the top platform of *xix*, the south side, in most of its height, is a visible wall indicated on the plan by a black line. So also there are visible walls on the south sides of *v* and *vi*, on three sides of *xxxi*, and to some extent on three sides of the yard *xxv*; and in *xix*, again, there is some wall visible on the east side under the brow of the lower platform. On most of the walls visible there is a good deal of plaster preserved. The north side of *xxi* is shown as a waving black line. It is not a wall, but neither is it a slope. The mound is torn down, or ruined, more or less vertically. So again, the west sides of *viii* and *xii* and the north end of *xxiii*.

You can say, I suppose, that the ruins of Xolchún were never measured till they were measured by me. But I was not the first investigator of them. There have been at least two investigators of a certain sort, before me; and they have done some damage. My information about them I got mostly at the ruins themselves from a farmer in whose house I lodged. He is the owner of part of the

place and he has been living there for some thirty years. He is now a man of fifty-five or sixty.

The first investigator he tells about was a certain Colonel Elgueta, Manuel García Elgueta, who lived in Totonicapán. He died just a few years ago. He was a man of antiquarian tastes, but (I should say) without much knowledge. Like most of these people, he had no taste for exactness. He wrote some pamphlets, about Indians, that I have seen—full of absurdities. This man came, it seems, at two different times to the ruins of Xolchún and dug at them. The first time was in the later eighties of the last century, or in the early nineties. He made a great many finds (I do not know what exactly) and some of them, at least, were exhibited at Chicago in 1893, and were reported to be worth a great deal of money. What the fate of the exhibit was I do not know, but I have an impression that some of the things found their way to California and others to Paris. You could probably find out.¹

Elgueta's second digging was some time about the end of the century; and again he got a great many things. My landlord saw the things, but his account of them was never very intelligible. There were some things made of steel, according to him; but he went on to describe the metal as of a whitish yellow colour. And there was some little machine for boring holes in stone; you gave two or three turns to something and in a jiffy there was a hole started in the stone. In these last diggings of Elgueta's there was a partnership between him and my landlord. My landlord was the owner of the site, and I think, gave Elgueta the necessary men, and Elgueta managed the work. Elgueta and my landlord were to go halves on the finds, or on the proceeds of the finds; Elgueta was to sell them somewhere. The work at Xolchún was getting on famously when of a sudden, Elgueta had to take to his heels. The law was put in motion against him. An armed commission arrived one night with orders to seize him and bind him and take him to Huehuetenango. Somehow or other, Elgueta got a few moments' warning of the commission and managed to get away. He remained in hiding, I believe, for a long time; and he never came back to Xolchún. As for the finds that had been made that were going to be the fortune of the partners, Elgueta had always kept sending them off to Totonicapán, my landlord believes it was; and that was the last my landlord ever knew of them. He regards himself as having been swindled by the colonel.

The spots where Elgueta worked are indicated on my plan. I do not know the order of them, exactly, but it was he that demolished the eastern side of *xxxi*. He made the excavation round *iv*, *v* and *vi*. These are flat-topped masses of masonry. It looks as if *iv* and *v*, at least, were originally one mass, and Elgueta had demolished the middle of it. He also made the hole between that place and *vii*. Almost his last job was to tear down the west side of *vii*. He had just begun

¹ The Guatemalan archaeological collections exhibited at the Chicago World's Columbian Exposition in 1893 were scattered. Some are in this Museum, some in Field Museum of Natural History, Chicago. Strange to say, in both museums, some of the material is accessioned as the "Gift of the Ecuador Commission." This information of Mr. Burkitt's may help to settle the provenance of some of the specimens in these collections, such as the beautiful pottery vase published in Plates XXVI and XXVII of our album "Maya Pottery," which came from this source and for which the only provenance given is "Department of Huehuetenango." It may well be one of the results of Elgueta's work at Xolchún.—J. A. M.

to tear down the east side of *iii* when his operations were put to a stop. All the damage he did to *iii* is where you see a piece of black line at the inside of the long platform.

About half a dozen years after the flight of Elgueta, the second investigator appears: a man called García, a Mexican, I believe. He is now living in Huehuetenango and I have spoken to him. He confirms what my landlord had to say. García is a man who has been a miner, and a cattle dealer, and a publican, and I don't know what else. He has no pretensions to being an antiquary. But he had heard of things being dug up at Xolchún and he thought he might find things too and get some splendid price for them. It was a mining enterprise. He got permission from the governor, somehow, to go and dig. He found absolutely nothing. The only place of his that I have troubled to mark is where he broke through the middle of *xxiv*. Besides that, he dug a little hole in *xxx* at the middle of the north side. There are remains there that indicate a plaster image or something of that sort. He also thought corners might be worth trying; he sank holes into the two south corners of *iii*. García, like most people of the country, regarded archaeology as a branch of mining; and I suppose it is, to some extent. But it was a branch of the business that was new to García. He formed an unfavourable opinion of it and soon went away.

I am not sure, but I think it was at the time of Elgueta's first diggings and at Elgueta's instance, that the affair marked *xxvii* was destroyed. What is left of the affair now is a pit half filled with loose stone and a ruined border round the pit. What it contained formerly was a great square cistern, or rather cubical cistern, cut out of one stone. It was dislodged with great labour and dragged on a sledge, little by little, to Aguacatán. It took seven yoke of oxen to drag it, on a level road. The cistern was placed, and now stands, in the middle of the little village square. The cistern, on the outside, is about one and a half metres long, one and one-tenth wide and one and one-tenth high; and the sides are about twenty centimetres thick. It is flat-bottomed and on one side, near a corner, there is a vent or bughole, flush with the inside bottom. And that struck me as very strange, because Indians who know the cistern of old and helped to dislodge it, declare, with one voice, that it was sunk in the ground almost to the brim.

There seem to be some other sunken cisterns on the place; *xvi*, *xvii* and *xi* are squares of visible stone. You will see by the table of heights that they rise very little above the ground. And they are probably all hollow, like square wells. In *xvi* and *xi*, the mouths and top surfaces are hidden under loose stone, piled up high on them by the modern tillers of the soil. But *xvii* is not covered; it is only choked with loose stone. The mouth is visible; you can measure the thickness of the four sides. They are about thirty centimetres thick. Possibly *xi* is a single stone like the cistern taken from *xxvii*. The other two are of built masonry.

On the top of the pyramid *iii* there is a hole, also on top of *vii*; and through the top of *xi* there is a trench. The holes are more or less rectangular. The sides are more or less vertical; but they are rough as if they were the work of some excavator. There is no doubt that the trench is an excavation. I could not learn the history of any of the three. None of them was made by García, because I asked him. My Xolchún landlord, who lives on the spot—his house is just south

of *viii*—says that the hole on top of *iii* has been there forever; that is, since anybody remembers. As for the hole in *vii*, he did not know of its existence. He had possibly never been to the top. The mound is very steep and stony and a place of snakes.

In the middle of the east side of *iii*, down at the bottom, you see a hole or passage indicated. It goes down hill into the mound and goes under the platform, like a cellar, as you can see in the profile. To look at it, you would take that rough hole, or cellar, to be somebody's excavation, but my landlord says it is not. According to him it belongs to the original structure and only looks now like an excavation because there was a falling in, some years ago, of the original roof and sides. He says the passage used to lead down to a well of water, a square stone well, or cistern (or bath as he himself sometimes called it) of beautiful, clear water. Where the water came from, he did not know. But there it was. And he supposes it is there yet, buried under the stone that caved in. When I think of that stone well with its constant supply of water, I cannot help thinking of the cistern torn out of *xxvii*, with the bung-hole at the bottom. And I can hardly doubt that if you cleaned out *xvi*, *xvii* and *xi*, you would find bung-holes at the bottom of them too. There must be channels leading to those bung-holes. I won't go on speculating.

It was shortly after Elgueta's first descent on Xolchún, I believe, that the cave-in at *iii* took place. According to the Indians, the mound fell in and buried things because it was angered at Elgueta's doings. The Indians have a belief that the cellar is inhabited by a mysterious snake, and they respect its habitation. The entrance was choked with bush and I had to take a cutlass and go in myself before the men would follow me. There was no snake. *Inania arcana*.

There are three pyramids—so to call them—on the place, *iii*, *vii* and *xi*. So shapeless is *xi* with rubbish and sod, that you can hardly see which way it faces, or where the corners are, or even whether it has faces or corners. You might almost think it was meant rather for a cone with a round base. On the north side of the base, however, at the west end, there is a little bit of stonework visible and it shows what must have been a straight line. That stonework is a bit of stair and, except for that bit, I should not have known there were stairs at or on *xi*. I did not notice any signs of stairs on *vii*. But the stairs on *iii* are quite traceable in many places, especially on the west side. I could not exactly measure them, but they would be about a metre high. I tried to use the pieces of stair visible, to get the direction of *iii*, but had to give it up. All the sides of the mound have bulged and the stair lines have bulged too. Within certain limits, you could get any direction you pleased from the stairs. That pyramid is the great feature of the place, to the casual eye. Roughly speaking, it is over fifteen metres high and about fifty-one metres square. And that pyramid is an object of veneration to the modern Indians. Not to mention the snake in the cellar, the Indians are continually going on top to burn incense. They do it for luck. And the doctors and wizards recite their gibberish up there, and take their patients up with them, or the relatives of their patients, and whip them up there on top, and so on. At the same time, the nature of their belief about the pyramid does not hinder the Indians from pasturing their sheep over it with perfect indifference. When you

stand in the cellar of *iii* and look around, you see that the pyramid is not a heap of earth, inside, but a heap of stone. The stones are not very big stones, bigger than a man's head though, usually thrown together anyhow, and, at least in that part of the structure, they are a compact mass. There may be some little earth in the chinks between stones, but very little; what you see is an almost pure mass of stone. On the other hand, *iii*, judging from Elgueta's demolition, seems to have a good deal of earth in it, both top and bottom. Stone, with earth between the stones, is also what you see in looking at the demolished parts of *xxiii*, *xxiv* and *xxxi*, and in other places. But *iv*, *v* and *vi* are solid masonry: stone and mortar.

There is a curious thing about the inside of *xxiv*. When you look at the sides of the breach that García made in it, you can see that at some distance below the present platform there was an older platform with a plaster floor. The present building is an improvement or heightening of an older one. It is evident that Xolchún is the work of different generations of men.

There are various ruins in the neighbourhood of Xolchún. Some of those ruins, if they were not near Xolchún, would themselves, I suppose, rank as important ruins. There are ruins on the Chalchitán heights. Those heights are more or less flat on top, forming a long table. It is practically bare of bush. And on that bare table there are various ruins strung out, covered with grass and sod. The most considerable of them is a direction northwesterly from Aguacatán and has a strong resemblance to the San Francisco ruins shown in Plate XXVIII. On the Pueblo Viejo heights, which are also a sort of bare flat table, there are also ruins—ruins of a peculiar kind. The principal objects are a number of square mounds, or squarish, rounded mounds. They might be about four metres square on the average and about four metres high, with a surface of stone and rubbish. They are stuck about, without any apparent order, and my notion is that they are graves, that they might have the same relation, perhaps, to the ruins of Xolchún as the group of blocks in Chipal, that I spoke of, may have to the ruins of the drawing. There are also ruins at Pichikil, about two or three leagues off the road to Cunén, and at Lagunas on a mountain shelf on the way to Nebaj.

I have now run over the various ruins with you that I was going to speak of, and told you nearly all that I had to tell. I suppose that what will have made the clearest impression on your mind will have been the drawings. You will understand, though, that the drawings are not meant to show details. Details, as far as possible, are ignored. Compare for instance, in the Chipal ruins, the drawing of box *vii* with the photograph (Figure 3) showing the ornaments I spoke of, García's embattlements and loopholes, ignored in Plate XXVII. And details that are not ignored may be merely representative. In flights of stairs, for instance, in their present state it is often impossible exactly to count the stairs, much less get their several heights and treads. Take the stairs in Chipal, going up from the yard just in front of *xiv*. In my drawing you would find, if you took the trouble to examine, that I have drawn in five stairs on each side of the pier; but you see in the first Chipal photograph, as I said when I introduced it, that the stairs are blocked up with modern stone fencing. I do not know how many stairs there are, and do not know any of their measurements, except their length. The thing is that there are, or were, stairs there. I thought it was important to repre-

sent stairs. And I have represented them. But I do not mean you to count them. I have put you on your guard in such cases by using dotted lines.

Those poor drawings of mine, situated as I was, cost me indescribable trouble. First of all, I had to put my notes together. My original notes of each ruin were on various scraps of paper, all dirty and rain-soaked. I put the notes together on one intelligible ground plan. Then on another paper I plotted the plan, or the corresponding perspective, to the scale I wanted. Then I pricked that through and finally inked it on the white paper I send you. By a miracle I was able to get some white paper in Huehuetenango. I always have a metric rule in my saddlebags. I manufactured a triangle, small but workable, out of a visiting card. But I never knew before what it was to work without a drawing board and a T-square. The drawings must have taken me, on the average, near a fortnight apiece. And now that I take them out of the hole that I worked in, and look at them in the sunshine, I see that the drawing leaves much to be desired. But it does not matter. The drawings succeed in telling you unmistakably, I think, what I meant them to tell and what photographs could not do.

In talking about the ruins, I have left the drawings, as much as possible, to talk for themselves. If I were to take it upon myself to talk for them, I should speak of some few points that happen to have struck me in comparing one ruin with another. They are points that anybody might notice.

First, as to bearings. There is no visible rule. The bearings of the ruins are various; and in Xolchún, there are several oscillations of bearing. You might say, however, that the bearings of Chipal, San Francisco, and Chichel agree roughly in being not far from northeast and northwest or the opposites, while the several bearings of Xolchún agree roughly in being not far from north and west, or the opposites. It happens too that the bearings of the Xoch ruins are about north and west.

Second, there is likely to be a pyramid building somewhere. In Xolchún, there is a *group* of pyramids. But in San Francisco there is none.

Third, in the Chipal ruins, consider the two platforms *ix* and *x*, you see that they are two parallel platforms on opposite sides of a passage and of equal length and height. And the sloping sides of those platforms, facing each other, are not stairs, but smooth masonry slopes as if to prevent anybody getting up. And you see the same thing over again in all the other ruins. The twin platforms of San Francisco are *iv* and *v*: in Chichel, *ix* and *xi*, and in Xolchún *xxiii* and *xxiv*.

Fifth, at the foot of each of the twin platforms in Chipal and on the insider, that is to say on the passage side, you see an attached lower platform—might call it a sidewalk—running the whole length of the main platform. And you see the same sidewalk platforms in San Francisco and in Xolchún. In Chichel, I did not happen to find them, but the whole floor there is deeply disturbed by planting. You would probably find the sidewalks by continued searching.

Sixth, the passage, in every case, opens at each end on a yard. The two yards are joined by the passage; the passage is in fact part of the yards; the yards and the passage are all one floor. In the case of Xolchún, I am considering as one of the yards—though it is not much enclosed—the space south of *xxii*. In the Xoch, I have little or no doubt that the long sunken yard or floor that I spoke

of would turn out, if cleared, to consist of what I have been calling the passage, with the yard at each end, and that the idol is on top of what answers to one of the twin platforms.

Seventh, one of the end yards is bigger than the other. In Chipal, for instance, the yard round *xiv* is bigger than that round *viii*.

Eighth, in San Francisco there is a complication. The bigger yard may be said to be divided in two. The main division of it, around *ix*, is separated from the passage by a small intermediate yard, about equal to the small yard at the other end. And there is a step up, as you see, as well as a barrier, between the intermediate yard and the main one.

Ninth, I should consider as homologous platforms, *i* of San Francisco, *xi* of Chichel, and *xxii* of Xolchún. The smaller of the two yards is closed—or commanded, as you might say in the case of Chichel—by a comparatively low platform opposite the end of the passage. Chipal is an exception, perhaps because the ground does not give room. As the drawing indicates, the ground falls away on one side, opposite the end of the passage.

Tenth, the larger of the two yards is a square, or very nearly a square. In Chipal, for this purpose, I do not consider the larger yard to include *xii* and *xvi*, but to stop at the end of its own floor. In San Francisco, I have to throw the two divisions into one and say that the sum of their widths does not differ very much from the length of the main division. In Xolchún the square is not rectangular.

Eleventh, the sides of the square are equal to the length of the passage. In San Francisco, I have to say that it is the sum of the widths of the two divisions that is equal to the length of the passage. And in Xolchún, the proposition does not hold. In Xolchún, you might say that the sides of the big yard were about equal to the length of the passage plus the width of the smaller yard.

Twelfth, in San Francisco, the length of the passage (or of the twin platforms) is equal to the extreme width across the platforms, from outside to outside. The platforms and the passage together form a square.

Thirteenth, I should regard as homologous buildings, *xix* of Chipal, *xiii* of San Francisco, and *xx* of Xolchún. The big yard is closed and commanded, at the side opposite the passage, by a two or three story platform, a compound platform, with stairs up from the yard.

Fourteenth, in Xolchún, for this purpose, I have to consider *xxx* and that part of *xxvi* that it stands on as together forming one compound platform. You will see what my notion is better in the profile than in the plan. There are no stairs represented either in plan or profile, but in front of *xxx*, where the side of the yard is only dotted in, I think that if the place were cleaned, stairs would be found going down to the yard. That place, as it is, is a slope of rubbish and ruin.

Fifteenth, as for Chichel, I should hesitate to regard *iv* as the homologue of the platforms I have been speaking of. It is true, *iv* is a compound platform, but there are no stairs. I should suppose, rather, that the homologue was *viii*, though not placed opposite the passage.

Sixteenth, the stairs in question are in two parallel flights. In Xolchún, the stairs are not visible, supposing them to exist.

Seventeenth, in San Francisco and Chichel, the stairs do not start up from the floor of the yard, but from the lower platform.

Eighteenth, in San Francisco, there are also back stairs; the back stairs are a single flight of the same width as the interval between the two front flights. Those back stairs only go down to the foot of the little platform.

Nineteenth, the centre of the big yard is occupied by a block or box of masonry—an altar, or a shrine, or whatever it may have been—some evidently important though comparatively small thing.

Twentieth, but what this particular thing is, varies from place to place. In Chipal the thing is a block. The box is somewhere else. In San Francisco the thing is also a block and there is no box anywhere. In Chichel the thing is a box and there is no block anywhere. In Xolchún the thing seems to have been neither a block nor a box. The only block in Xolchún is *xli*, unless you count *iv*, *v* and *vi*. An excessively low block is *x*. The central thing in the yard *xxv* of Xolchún, the thing that was in *xxvii* before it was gutted, was, as I have said, a cistern; at least, the cistern is all I hear about. You might think it worth noticing that, in Chipal, the block *xiv* has a number of satellites and that two of them, as I have said, the round ones, may have been cisterns or big basins.

Twenty-first, at Chichel *xii*, at Xolchún *xix* and *xxxi*, are more or less lonely compound platforms with a certain resemblance to each other. Chichel *xii* and Xolchún *xxi* have, in addition, a certain resemblance in situation with respect to what I have been calling the big yard. In *xix* of Xolchún, the front or easterly side of the lower platform is oblique to the other sides, somewhat as if it were meant to face mound *xx*.

Lastly, in all the ruins, you have to reckon with unexpected departures from symmetry, or regularity, even in details. In Chipal, if you look at the satellites of *xiv*, you will see that one of them, the one furthest to your right, is not in line with its companion on the other side. In San Francisco, in the compound platform *xiii*, one flight of the front stairs is wider than the other. In the same compound platform you can count at least five stories, if you wish; and you will find that the insets, by which a story is made shorter than the one below it, are not bound to be equal at the two ends. In Chichel, in the yard, you will see that the corner of *x* is not so simple as that of *ix*. And it is easy to see that the platform *xi* is not in the middle, opposite the end of the passage or of the yard. In Xolchún, both in *xix* and *xxxi*, the top platform is not in the middle of the bottom platform. The top of *xxiii* is wider than the top of *xxiv*, *xxviii* seems to be not a parallelogram, since the long sides converge a little toward the north. The long axis of *xxvii* bisects *xxvi*, apparently, but not *xxv*. And so on.

So much for the drawings. Naturally, there are things to be seen at the ruins, and some of them very interesting subjects of comparison, on which the drawings are silent.

At all the ruins there are plentiful remains of plaster and mortar. And the remains make it evident that the buildings, originally, were completely plastered over. There is little or no dressed stone; facing stones may be brought roughly to shape, as you can see in the last picture. But for smoothing the surface, the builders depended on mortar. The mortar, at least the surface mortar, has now

mostly disappeared. It is the ordinary effect of weather, no doubt, partly; but mere weather, I should say, was not the main cause. The mortar itself, I should say, was not good mortar, no good sand in it. And then the sustaining masonry is like all the Indian-ruin masonry I have ever seen; it is poor masonry; it cannot help settling and bulging and becoming deformed, and the plaster cracks off. But worst of all must have been the fires that have swept over the ruins, the annual fires that are a part of Indian agriculture. No mortar could stand those fires. The plaster and mortar images and similar things, of which there are evidences at every place from the Xoch on, are also nearly all destroyed. The only mortar images I saw that were in any sort of preservation were the two or three that I mentioned in connection with San Francisco and Chichel and two or three at the Xoch. You have plaster and mortar, as I say, instead of cut stone masonry, in these ruins; and you have plaster and mortar images instead of images of carved stone. I came across only two stone carvings. One of them is illustrated in Figure 1, the stone slab in the Xoch. The other was in Xolchún. It was equally crude carving and less interesting to look at. It happens, in the last photograph of Xolchún (Figure 4) you can see the stone in question. It is a black stone that you see standing on the ground, not in the middle of the picture, but rather to the right. It is a little less than a metre high; to be precise, ninety centimetres. It was lying in the rubbish there, and I set it up. What you can make out of the carving, if you look sharp, is down at the bottom. There are two eyes looking straight at you and a nose between. One of the eyes, unluckily, is obscured by a twig. The stone is cut across flat, both top and bottom. The face does not go below the nose. The stone was evidently one section of a sectional image. The carving is shallow, like that in the Xoch, hardly more than sketching on the stone, and the back of the stone is not worked.

These clumsy primitive carvings are in strange contrast with such things as the great cut stone cistern of Xolchún. They are also in strange contrast with things that show the intelligent geometry of the ruins and with things that show the level of taste that you see, for instance, in the pottery of Chipal. What can be the explanation? I do not know. But I have a notion that the key to it may be another strange thing that I noticed.

When I was cleaning the image in the Xoch to photograph it, I noticed there were little bits of plaster sticking on it. It struck me as very odd. Why should an image have been plastered over? Some accident perhaps. But you can fancy my astonishment, in looking over the Xolchún image, when I saw spots of plaster on that image too. You can make out some of the spots in the photograph, in the upper part of the face. I gave up the notion of an accident. Both of those primitive carvings had been plastered over. Why? Because they were primitive. In order to improve them. Old things were improved or renovated. The old platform under *xxiv* was improved by having a new one built over it. And the old idols were improved. The primitive stone idol became the core of a brand new plaster idol. The plaster has since crumbled away, leaving the old stone bare again. But why keep the old stone, even as a core? It is not like keeping the old platform to build on. The old stone was kept because it was sacred. You see in churches today how pious peasants, in spite of the Pope's ordinance, persist

in overlaying and, as they consider, beautifying sacred images with new and incongruous dressings. The proceeding of the Indians was something similar. The Indians of a later day were bent on improvement. The old stone looked ugly to them. At the same time, it was, so to speak, a god. They had no notion of throwing it away. What they did was to cover the ancient lineaments out of sight and, like modern liberals, bring the divinity up to the standard of the age. That is the theory I offer you about the plaster spots.

This is the longest letter I ever wrote. I hate writing. It makes me impatient. I want to speak. On the fifteenth of November when I sat down to write to you I actually thought that probably I could say nearly all I had to say in the course of an afternoon. And so I could have done, if it had been a question of talking. But I find I have no facility at putting my ideas on paper. I suppose because I am not used to it, or because the ideas are of a new kind to me. This writing, that I thought I should do in an afternoon, or a day or two at the most, has actually taken me six weeks.



FIGURE 1

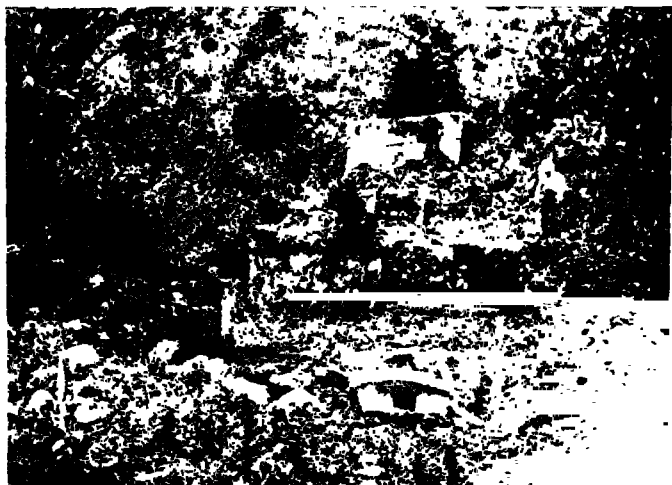


FIGURE 2



FIGURE 3



FIGURE 4

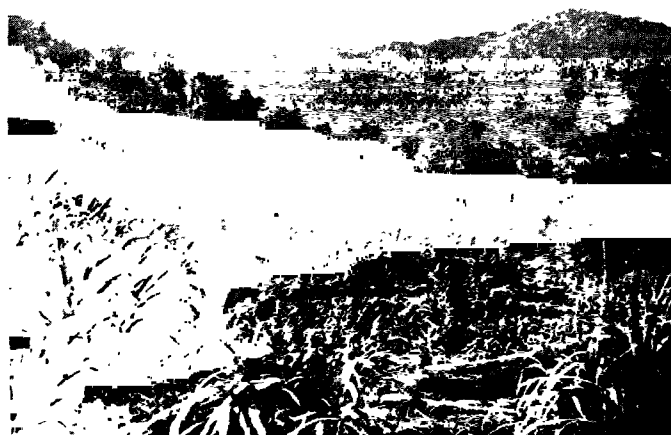


FIGURE 5



FIGURE 6



FIGURE 7



FIGURE 8

PLATE XXVI. BENNETT: Explorations in Western Guatemala

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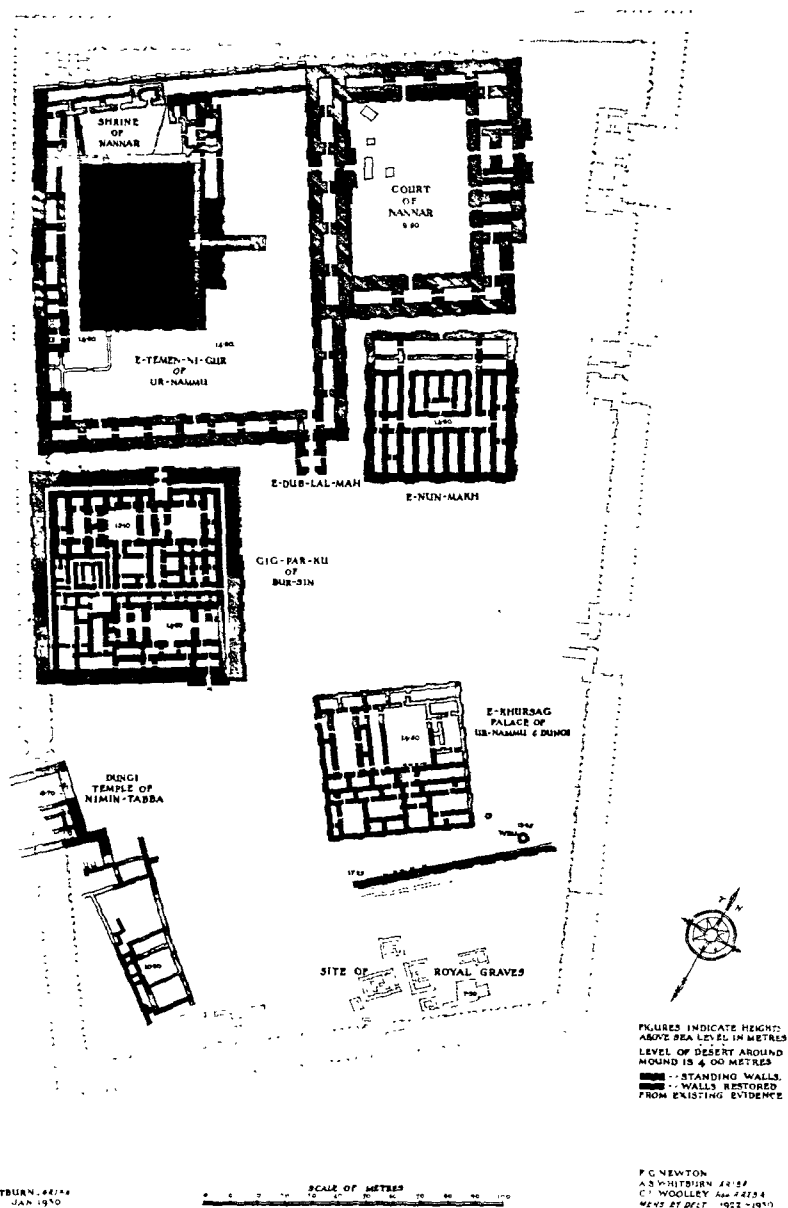
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EXCAVATIONS AT UR, 1929-30

By C. LEONARD WOOLLEY, Litt.D.

THE eighth season of the Joint Expedition of the British Museum and of the Museum of the University of Pennsylvania started at Ur on November 1, 1929, and ended on March 19, 1930. The staff consisted of my wife, who as usual was responsible for the type-drawings of objects, the planning of the cemetery, and for a share in the field-work; Mr. M. E. L. Mallowan, general archaeological assistant; the Rev. E. Burrows, S.J., epigraphist; and Mr. A. S. Whitburn, architect. Hamoudi was, as always, head foreman with his sons, Yahia, Ibrahim, and Alawi acting under him; owing to the fact that work was always going on in at least two spots fairly far apart, greater responsibility than usual was thrown on the younger foremen, who answered admirably to the demands on them; Yahia combined this work with that of staff photographer. The number of men employed varied slightly at different times, but was always over two hundred and for most of the season kept at about two hundred and forty, a number well in excess of the average of past seasons; the amount of work done was correspondingly great. I have to thank the Royal Air Force in Iraq for help of many sorts and not least for an air photograph mosaic of the site taken at the close of the season and of much value for purposes of comparison with earlier photographs; Lt.-Colonel Tainsh, Director of the Iraq Railways, for facilities enabling me to undertake a short experimental dig at Meraijib, a prehistoric site some ten miles south of Ur; and the Director of Antiquities, Iraq, for his help in this Meraijib work and to the Expedition in general. I must also acknowledge my indebtedness to the staff of the British Museum Laboratory, where the work of restoring and cleaning was as usual carried out, and in particular to Mr. E. C. Padgham for his success with the silver objects; Mr. Evan Watkin of the Department of Egyptian Antiquities undertook the mending of the stone vases, and for the mending of the pottery the services of Mrs. F. W. Bard were secured.

Three distinct tasks were envisaged by our programme for the winter, all of which were successfully carried out: (a) The continuation of the excavation of the royal cemetery resulted in the completion of the work; the limits of the graveyard were found, and though a certain number of graves, principally of the late period, undoubtedly remain, they would not repay the cost of excavation. The clearing of the cemetery led to deeper digging, and in two places virgin soil was encountered; between this and the bottom level of the royal graveyard were found graves of a totally different character and date illustrating a period of history hitherto scarcely represented at Ur. (b) The further investigation of the Flood stratum occupied a large gang of men for the greater part of the season, and here again work was carried down to virgin soil. (c) The tracing of the walls of the city was completed. This involved the excavation of three temple sites and of a number of houses in addition to the work on the wall itself.

Advantage was taken of Mr. Whitburn's presence to work out on the spot the ground-plans of the Temenos of Ur at different periods. The material for these plans had, of course, been amassed during the past seven years, but to sort and combine that material a certain amount of fresh survey work was required and doubtful points had to be re-examined. The Third Dynasty plan [Plate I] has yet to be completed by the excavation of an important building of Bur-Sin found this season on the outskirts of the cemetery area; that of the Larsa period [Plate II] is probably final, and those of the Kassite and Neo-Babylonian periods [Plates III and IV] include everything that now remains of the buildings of those dates. The series is of the greatest interest as showing the modifications and rebuildings of the principal temples between 2300 and 530 B.C.

THE WORK ON THE CITY WALLS [Plate V]

The general character of the defences had been ascertained by partial digging carried out in the season 1928-29¹. The principal new discovery of this year was that the ramparts which form the base of the wall proper served also as the revetment of a canal or river bank. Along the west side of the city ran the Euphrates; canals along the other sides virtually transformed the site into an island; another canal ran through the heart of the city.

The rampart of mud brick, to judge by the measurements and character of the bricks in it, dated from the Third Dynasty of Ur and was probably the work of Ur-Engur (Ur-Nammu); this is confirmed by the fact that a building of Bur-Sin his grandson stands actually on the rampart, which must have been already standing. It was, in places, re-faced several times at later dates, but seems to have been little altered up to the Kassite period, and even in Neo-Babylonian times its general line remained much the same. The rampart appears to have been about eight metres high and varied in width (at its base) from twenty-five to thirty-four metres; its front face sloped at an angle of about fifty degrees, forming the canal or river bank, its back face rose only some metre and a half above the terrace on which the town stood; to this terrace the rampart served as a retaining-wall. Of the wall of burnt brick which Ur-Engur built along the top of the rampart (as is known from inscribed bricks found re-used at various points inside the town), not a vestige remained anywhere. What did survive were public or private buildings, mostly of the Larsa period, which were aligned along the top of the rampart, their outer walls joined up so as to make a continuous line of defence. For the most part these buildings, to judge by their scanty remains, were set well back, leaving a broad flat promenade between the wall line and the edge of the sloped revetment, which would be an excellent manœuvring-ground for defending troops. At intervals, though with no regularity of system, the buildings projected forward, forming salients almost flush with the top of the slope, and in one case at least stepped well down it; where this occurred the lower part of the building was filled in solid with earth as if for the foundations of a tower.

A high line of mud-brick construction with water or low ground all along one side of it was bound to suffer severely from weather, and most of the rampart has been denuded into a shapeless mound whose present face slopes gently and irregu-

¹ Described in the *Antiquaries Journal* for October, 1929.

larly back from the canal edge to the extreme back of the brickwork; its whole front and top have vanished, and with the top have gone whatever buildings stood on it. To lay bare the whole of this would have been a task as futile as it would have been costly, for in most places there was nothing to find. The method adopted was to make cuts at intervals across the supposed line of the wall in order to verify the existence of the mud-brick rampart; if any of the true face was found, this of course gave the exact line, and where only the core survived, the line was at any rate approximate. Any buildings found on the wall-top were thoroughly excavated, and where the wall was difficult to follow, work was carried farther "inland" until, if possible, buildings were reached whose frontage might be assumed to run parallel with the direction of the wall.

The best-preserved part of the defences was on the east side of the town. Here the rampart still stands to its full height, and on it are the houses which formed the wall proper, their burnt brickwork surviving to several courses above floor-level. Brick stamps would date the houses in the reign of Sin-idinnam of Larsa. To the south of the main block of private houses there projects a very massively built fort, undated by inscriptions but certainly of the Larsa period, lying on the top of the rampart but separated from the wall line by a narrow space. Here the rampart widened out and had supported an important building, the lower part of which consisted of a solid mud-brick terrace faced with burnt bricks front and back. Of its interior walls nothing remained, but an elaborate gateway approach of Kuri-Galzu and heavy mud-brick foundations of a Neo-Babylonian fortress showed that whatever had stood here was an important element in the city's defences.

On the west side of the city there was a harbour, connected with the Euphrates and lying inside the wall line. An earthwork topped by a wall of mud-brick carried on the line of the rampart proper and formed the mole enclosing the harbour. At the north end this had been strengthened by a *kisu*, a solid cube of mud brickwork built up against its outer face at a later period, and also at a later period the harbour entrance had been blocked with mud brickwork; indeed the entrance was most difficult to find, but the discovery that at a certain point the bricks were of a slightly different size and had been piled in carelessly instead of being truly laid did finally enable us to distinguish the blocking from the original wall. The high terrace of the town sloped down very steeply to the harbour and clearly defined its area and shape, though cuts were made to show the exact line; a cut at the back of the harbour was taken down through muddy sediment to bottom level and exposed the burnt-brick footings of the mud-brick quay wall.

At the north end of the city there was a second harbour, the greater part of which could have been planned from surface indications, the low dark mounds of the moles being quite distinct; however, cuts were made across these and the outer face followed for some distance. Here again the enclosing line consisted of a mud-brick wall (of which not much survived) built along the top of an earthwork; the latter was of rubbish thickly revetted with mud containing much broken pottery. The eastern mole ran along a spit of land which extended for some distance to the outside, that is to the east, of it; the canal lay beyond this, leaving a flat level strip between it and the rampart, which it only touched by the angle of the eastern fort. Possibly the water originally washed the foot of the defences all along and

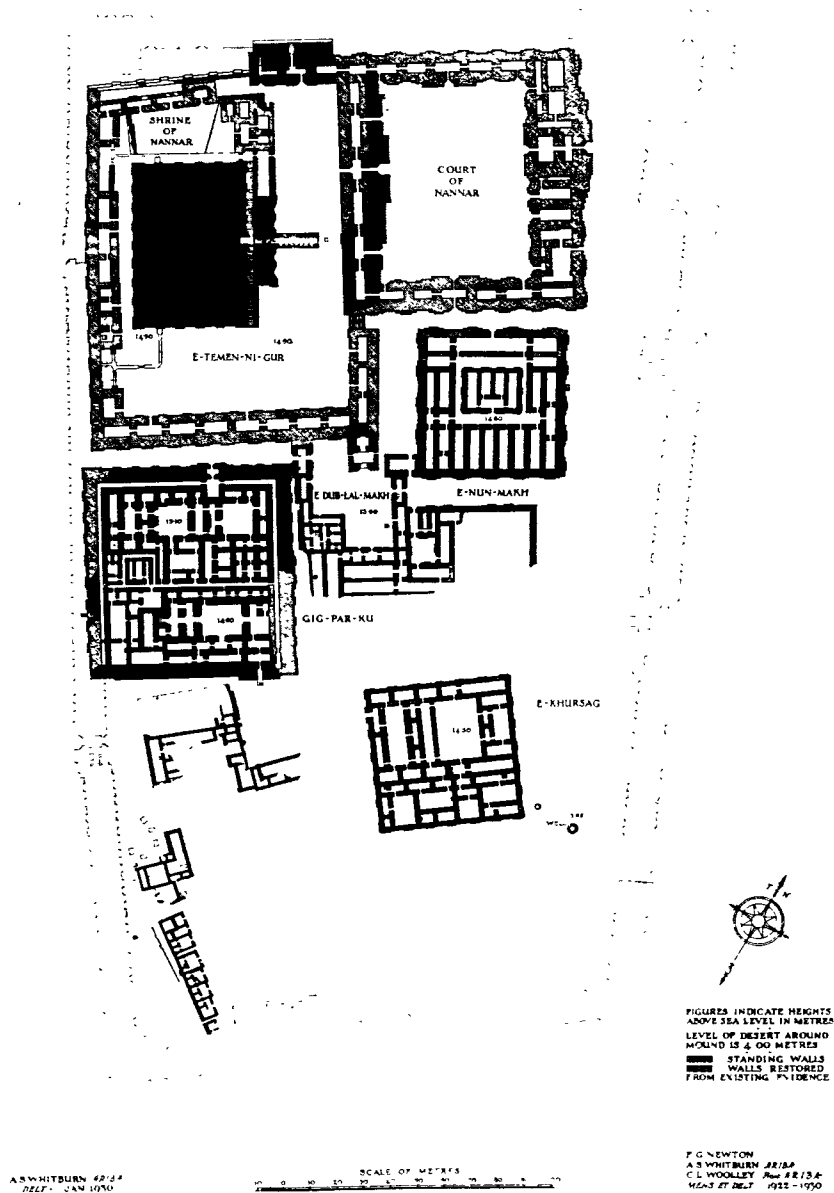
had merely retreated; at one point we were able to distinguish in its silted-up bed another bank of what must have been an insignificant water-channel taking the place of the old navigable canal. I should remark that only one bank of the canal was traced by us, that nearest to the town; the width of its bed and what stood on its farther bank remain unknown.

Along the line of the wall there were found a number of graves of the Persian period, underlying the floors of houses which had themselves entirely disappeared. They consisted of terra-cotta coffins, bath-shaped with one square and one rounded end, in which were bodies sharply contracted, the length of the coffin little exceeding three feet. In these were found many glazed pottery vessels, unglazed bowls very beautifully turned and often of egg-shell thinness, beads of stone and glass paste or glaze, bronze fibulae, silver ear-rings and finger-rings, and one extremely fine silver bowl decorated with fluting and chased work [Plate VIII, 1]; this unique piece was supposed to be bronze, so thickly was it covered with cuprous oxide, and it was only after prolonged chemical treatment that its real nature was discovered; the same is true of three finger-rings, the preservation of which is no less remarkable than that of the bowl.

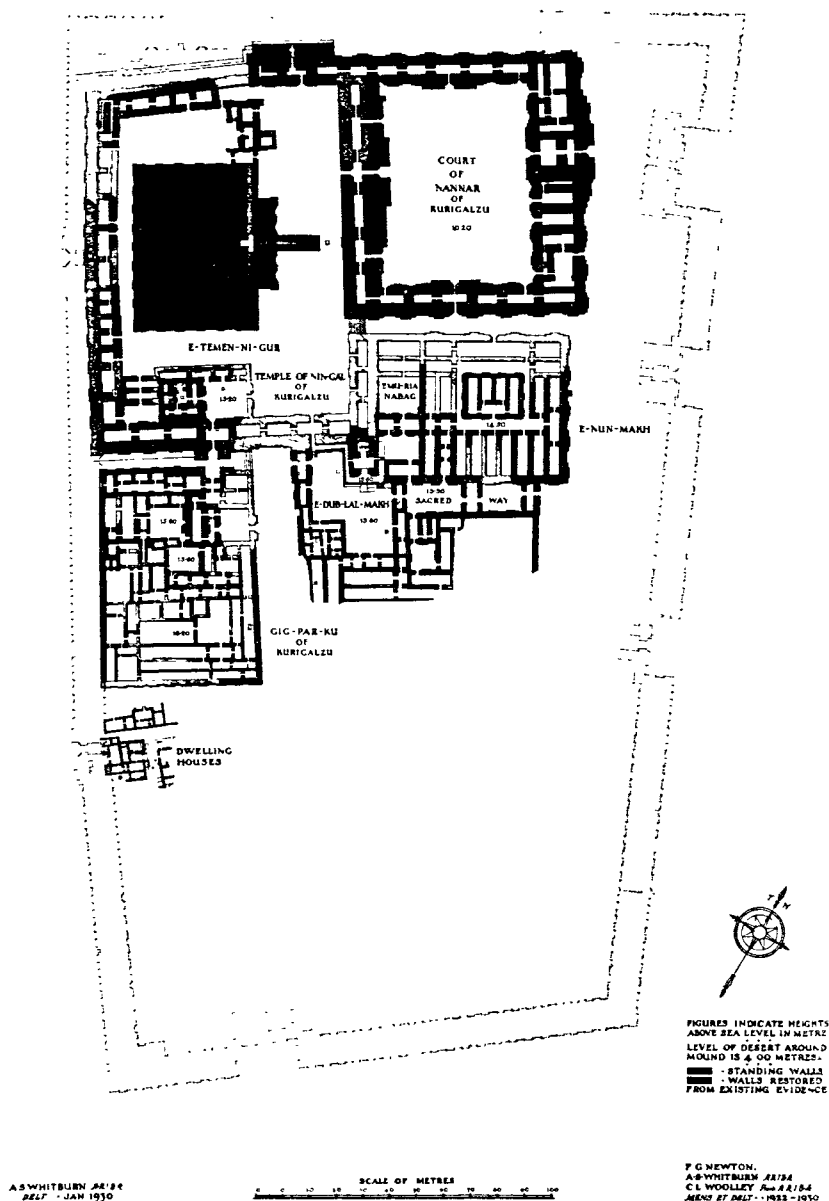
The private houses surviving on the wall-line were almost all of the Larsa period and presented few features of interest; below the floors were graves, some of which produced pottery typical of the period, but little else. The description of these must stand over for the final publication of the Expedition. In this preliminary report it is only possible to deal with the more important buildings whose excavation was incidental to the tracing of the defences.

In the last week of the season we found and excavated a large temple lying in the corner of the North Harbour. Its site was marked by a low mound which had obviously been disturbed by seekers after treasure, and a few scattered bricks bearing the stamp of Nabonidus showed that the buried building was of late date. As it seemed to be important for defining the exact limits of the harbour, we decided to clear it, and were astonished to discover here the best-preserved of all the ruins of Ur. The temple [Plate VII, 1] is constructed in mud brick with a facing of burnt brick to the outer walls and certain interior details also in burnt brick; the walls are standing to a height of twenty feet, and on them the mud plaster and even much of the white-wash survive. In order to protect it from re-burial by the sandstorms of the summer months it was covered with a temporary roof, which gives to it a striking air of completeness [Plate IX]. The temple stood close to the water or, more probably, on ground actually reclaimed from the harbour. It was founded by Nebuchadnezzar (about 600 B. C.) and was restored some seventy years later by Nabonidus. It would appear that the low-lying site was damp, for Nabonidus filled in the whole building with clean soil to a depth of two metres or more and laid a new floor over this; he added certain burnt-brick features and presumably made an increase in the wall height corresponding to the rise in floor-level. Along one side of the building runs a corridor with a doorway at either end; side doors lead from it into the temple proper. This consists of outer court, pronaos and sanctuary, with a long "oracle-chamber" behind the sanctuary and service chambers down the northeast side, balancing the corridor on the southwest. The great altar in the sanctuary, set in a shallow niche, is of burnt brick, and in the

E - GISH - SHIR - GAL
THE TEMENOS OF UR
LARSA PERIOD - C 2000 B C



E - GISH - SHIR - GAL
THE TEMENOS OF UR
KASSITE PERIOD C 1400-B.C.



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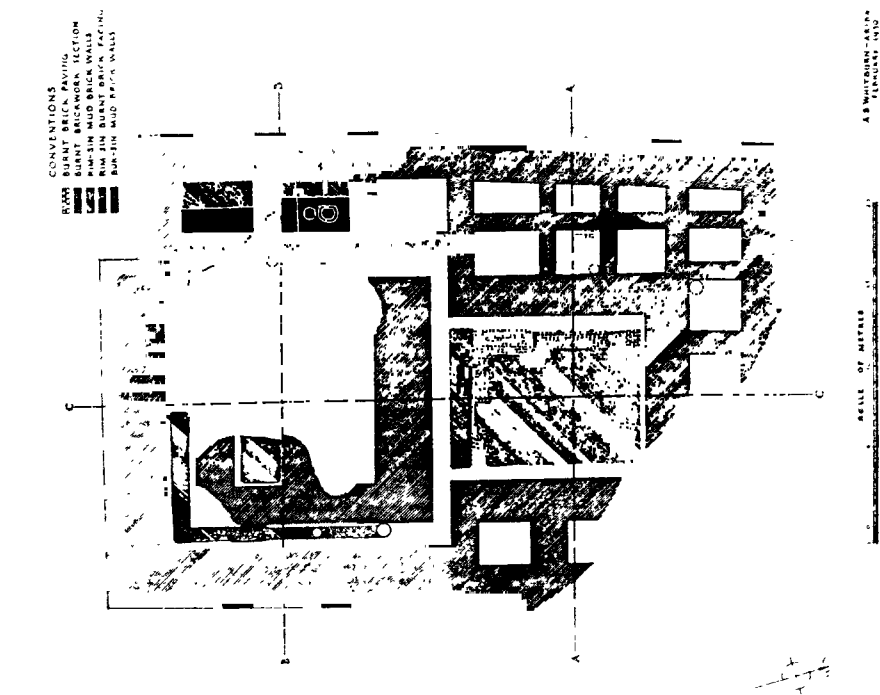


FIGURE 1.—Temple of Enki: Plan of Existing Remains.

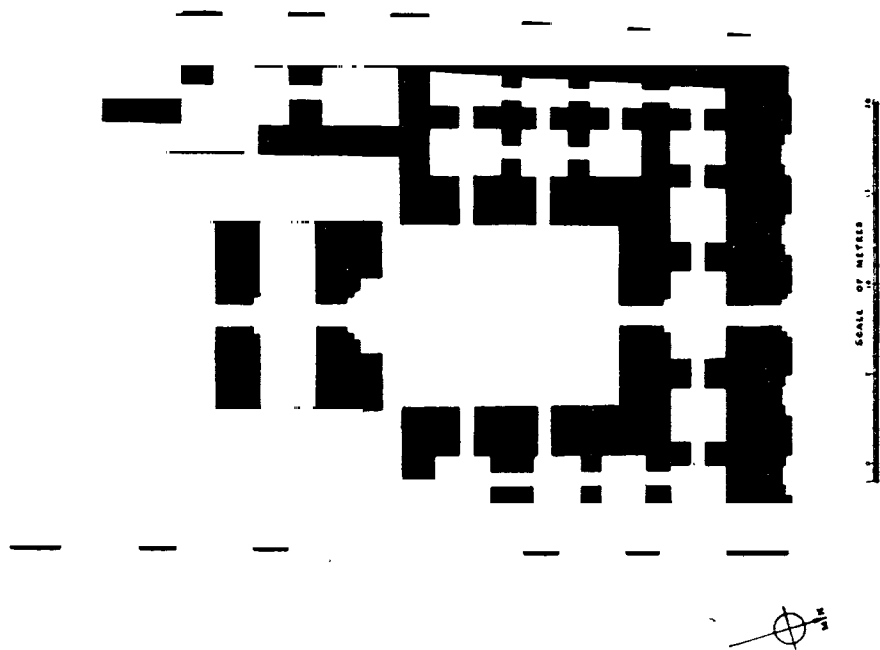


FIGURE 2.—Temple of Enki: Reconstruction of Rem-Sin's Building.

sanctuary and against walls in the pronaos and in the outer court there are groups of burnt-brick "pilasters" which seem to be the cores for wood-panelling; their purpose is unknown. Two other features in burnt brick, one in the pronaos and one in the court, call for special mention. The first is a square pillar, the second a length of narrow walling. In other Neo-Babylonian temples at Ur, such as that which will be described next in this report, precisely the same features have been found, but as there were never more than two or three courses of brickwork left standing above pavement-level, their real character was disguised. I had supposed that the square block in the pronaos was an altar and the narrow block in front of the pronaos door was a "table of offerings," as it certainly was in the Larsa-period temple of Nin-Gal, where the bitumen top of the table was preserved. But in the Harbour Temple now under discussion both these structures were found standing to the full existing height of the walls. There can be no doubt that in the centre of the pronaos we have a pillar supporting the flat roof, a point of considerable importance for the architectural history of the late period. The wall in the court is not so easy to explain; it is a screen which effectually masks the view of the sanctuary, and while it too may have performed some structural function it looks more as if it were intended for a screen, nor is it likely that there was any roof over the court requiring support. Another feature of interest is the staircase in the lateral passage. This was an addition by Nabonidus and does not seem to have any counterpart in the earlier building; it is built of mud-brick only. The stairs run up from the corridor, turn over the wall of the temple proper, and were carried on in wood over a narrow passage with a right-angled turn at its end. They must have led to a gallery or chamber above the entrance to the sanctuary and perhaps extending over the sanctuary itself, and suggest something in the nature of the medieval rood-loft. I do not know of any parallel to this elsewhere.

No inscriptions were found in the temple giving its name or that of the deity to whom it was dedicated; it is possible that further research next season may throw light upon the question. Last winter there was only time for the excavation and roofing of the building.

At the south end of the town, just inside the fortifications, another temple built by Nebuchadnezzar was found; not particularly interesting in itself, it acquired interest from the method of its discovery, which was one of the lucky accidents of archaeological work. The walls, all of mud brick, had been destroyed down to floor-level, and at the sanctuary end even the burnt bricks of the pavement had gone, leaving only the substratum of mud bricks; these scanty remains lay immediately below the surface sand, and when the men scraped the sand away only a mud-brick level was visible. A workman, rather smarter than the rest, noticed that the bricks were not uniform in colour, some being reddish and some grey, and that the patch of greyer bricks at which he was working began to take definite shape; then that between grey bricks and red there was a line of white about as thick as stout paper. Actually the red bricks were pavement foundation, the grey were walls, and the white was the whitewash which, applied to the surface of the upper part of the wall, now destroyed, had trickled down between wall and floor. On such evidence we were able to work out the complete ground-plan of the temple [Plate VII, 2], the only doubtful point being the precise width of the niche

in the "oracle-chamber." The remains of the building had to be removed for the investigation of earlier ruins beneath it, and the foundations encountered in the process proved the accuracy of the plan. It also became clear that the courtyard and the sanctuary were constructed independently (the foundations of the latter went down much more deeply) and perhaps at different times; since the pavement which spread over sanctuary and courtyard alike was the work of Nebuchadnezzar, the latter at any rate must be assigned to him, while possibly his work on the sanctuary was rather one of restoration than construction, and its foundation may have been due to an earlier ruler. If that were so we could on the strength of brick measurements reasonably attribute it to Sinbalatsu-iqbi, the Assyrian governor of fifty years before. No dedication-inscriptions were discovered.

Lying partly underneath the ruins of the Neo-Babylonian temple but extending well beyond it to the top of the city rampart were the superimposed remains of four other temples. Of these one was undoubtedly Kassite, one was of the Larsa period added to and repaired in some intermediate age, and the lowest must belong approximately to the Third Dynasty of Ur. The excavation of the site was not completed by the end of the season and the publication of the plans must be deferred until more digging has been done; up to the present we know nothing as to the authorship or dedication of the successive buildings. In the Larsa level there was found a small and much damaged limestone head of a god; originally of fine workmanship, it was chiefly remarkable for the manner in which the whiskers were represented. In the lowest building, that assigned to the Third Dynasty of Ur, of which only a very small part has as yet been laid bare, a very interesting discovery was made: that of the lower part of a column built of segmentally moulded mud bricks, eight of which formed a ring round a central, circular brick [Plate VIII, 2]. For the history of architecture this is a document of first-class importance. In the minds of archaeologists there has been an extraordinary prejudice, reflected in books of architecture, to the effect that the column was not known in Mesopotamia; any building with columns was assigned *ex hypothesi* to the Classical period. A columnar building at Nippur which the excavator judged to be Kassite (about 1400 B.C.) was ruled out as Parthian; columns at Babylon were attributed to the Greek period; at Tello a composite column of burnt brick was found which undoubtedly belonged to about 2400 B.C., but it was held to be a colum-shaped base, not a column. Dr. Hall, and later the Joint Expedition, at al-'Ubaid found columns of wood overlaid with copper or mosaic and dated to 3100 B.C., and still earlier columns of mud brick were discovered at Kish; these could scarcely be disputed, but it was suggested that the form thus early in use was early forgotten, and that Kish and al-'Ubaid proved nothing for the later Sumerian age. This column at Ur must date about 2300 B.C.; it stands mid-way between two parallel walls against the faces of which are attached pilasters or jambs in line with the column, suggesting something in the nature of a Greek building *in antis*; we have therefore definite proof that the Sumerian builders at Ur did employ the column in the great age of Sumerian architecture as they certainly did before and, as the formerly discredited instances would show, subsequently in history.

On the southeast side of the town another temple site was discovered and excavated, and here again there were superimposed ruins of the Larsa and of the

Third Dynasty periods. Behind the rampart, which was badly weathered at this point, was found a buttressed wall running inland; the character of the buttresses showed that it was a religious building and therefore I decided to clear it, although it formed no part of our main objective. Almost at once there were found, against the wall-face, clay foundation-cones which though not *in situ* (they ought to have been embedded in the wall's thickness) might be presumed to have come from its destroyed upper courses. Then, clearing the top of the wall, we found, only some fifteen centimetres below the modern surface, a box of burnt brick contrived in the mud-brick core of the wall, in which was an intact foundation-deposit consisting of the copper figure of the king and the brick-shaped inscribed steatite tablet [Plate X, 1 and 2]. The inscription on these was identical with that on the cones: the temple was dedicated to En-ki, the water-god of Eridu, the ruins of which rise in view twelve miles away across the plain, by Rim-Sin king of Larsa; the ninth year of that king's reign was called "the year in which he built the temple of En-ki at Ur," and our building can therefore be accurately dated to the year 1990 B.C.

The temple lay partly on and partly behind the rampart, the foundations of it western half being stepped down deeply to the terrace-level of the inner town; this half was therefore tolerably well preserved, while the high-lying eastern half had suffered severely and all the northeast corner had been weathered away completely. The main lines of the ground-plan could be traced or confidently restored, but the internal details of a building which at best did not rise above floor level could not be ascertained. In a temple of the water-god one would have expected an *aspu*, either a tank or a deep-sunk drain for offerings; the latter had never existed and of the former, if it had existed, no trace remained. The sanctuary formed a separate block surrounded by a passage, as was the case in the temple E-Nun-Makh, but here too the remains were only just sufficient to justify the restoration.

The temple of Rim-Sin had been built on the site of an older building, probably also a temple dedicated to En-ki, which could be identified by brick inscriptions as the work of Bur-Sin, king of the Third Dynasty of Ur about 2220 B.C.; it had been so cut about by the later walls that even its ground-plan was indistinguishable. The remains of the two buildings together are shown on Plate V, 1, and the restored plan of the Rim-Sin construction on Plate V, 2.

THE CEMETERY

Work was resumed on the cemetery which has figured so largely in the last three reports.¹ Three hundred and fifty graves were dug, and though a certain number undoubtedly remain, they are not likely to be such as would repay the heavy cost of excavation; the limits of the principal graveyard have been reached and beyond those limits there are only outlying burials mostly of late date. So far as the Joint Expedition is concerned the excavation of the royal cemetery is finished.

In the area dug last winter, the southwest end of the cemetery, only two stone-built royal tombs were discovered; of these one had been plundered in antiquity

¹ Published in the *Antiquaries Journal*.

and the second was relatively poor; both were small single-chambered tombs lying at a level considerably higher than any others found. The unplundered tomb contained a wooden coffin in which was a man's body; he had a gold-bladed dagger with a gold-studded wooden hilt and round his head no less than three of the normal head-bands consisting each of two lengths of gold chain and three large beads of lapis and gold. It seems fairly certain that these head-bands took the place of the modern Arab *ageyl* and were worn over a head-cloth, from which one can deduce that the head, like that of the Arab today, was clean shaven. In a corner of the coffin, well apart from the head, was a heap of dust preserving the texture of hair, undoubtedly the remains of a wig, and round this was a fillet of thin gold plate, while two gold hair-rings of the usual spiral type lay in the dust. The evidence that the Sumerian was clean-shaven and wore a wig on ceremonial occasions would explain the divergent representations in art which have puzzled archaeologists. From another grave was recovered a fine example of the court lady's head-dress with the traditional wreath, in this case of long ribbed leaves with flower rosettes, and with a second wreath having circular pendants formed of gold wire spirals. The beads on the upper part of the body were particularly numerous, and the cloak was fastened with a fine gold pin. In the grave was a small toilet-box of mother-of-pearl and shell and lapis inlay originally mounted on wood; it had a swivel lid of mother-of-pearl and in one of its two compartments there was still the green paint used for the eyes.

A clay pot in the form of an animal on wheels (with a hole in front for a string to pull it along by), an object rather like an old Staffordshire milk-jug, is interesting as well as curious, for it belongs to the rare group of zoöomorphic vases for which some writers have claimed a foreign origin; coming as it did from the lowest strata of the cemetery it carries the type back to an earlier date than any other example yet known, and makes the foreign attribution perhaps less likely [Plate XI, 1].

In 1926-27, when work was being done in this quarter of the cemetery, I reported the discovery of a limited number of graves which gave evidence of partial cremation; since then nothing of the sort had been remarked, but last winter more graves were found in which both the bones and the objects showed clear traces of fire. These graves date just before and just after the First Dynasty of Ur. They include both plain inhumation burials and clay coffin burials; they are confined to one rather outlying corner of the cemetery, and their contents are always poor. Probably they represent some particular element in the population of the town in the days of the First Dynasty; perhaps they were slaves, possibly foreigners.

But the main interest of the cemetery work lay in the evidence which was forthcoming for the date of the graves. From season to season there has accrued evidence, not all of which I have been able to publish in these preliminary reports, supporting the view originally put forward that the royal cemetery as a whole must fall between 3500 and 3200 B. C.; but the evidence did not amount to proof, and my conclusions were disputed in a good many quarters. I had already pointed out that between the Sargonic graves of the upper level and the royal cemetery proper there was a "barren stratum," sometimes pierced by intrusive graves, of course, but everywhere recognizable; it was in this barren stratum that there was found the lapis cylinder seal of Nin-tur-nin the wife of Mes-anni-padda, king

of the First Dynasty of Ur. In the area dug last winter this barren stratum was most noticeable, so well defined by its colour that a photograph of the side of the cutting made by the excavation shows it clearly. It will be remembered that the royal cemetery was dug down into the rubbish-heaps of the earlier town. Where there has been no subsequent disturbance of the ground the sloping strata of ashes, pottery, decayed brick, crumbled mud brick, and so on, are perfectly obvious; where graves have been dug the stratification has of course been destroyed in the process. On Plate XIII is shown the section of the cemetery area visible on the south-west limits of our excavated area. The upper light bands labelled S.I.S. I and II are, with the dark band between them, the "barren stratum" of my earlier reports; below them comes a broad confused belt, with no interior stratification, in which lie all the graves of the royal cemetery (the belt is here not so thick as it is farther to the east, where it goes considerably deeper), and below it is a well-defined dark band labelled S.I.S. IV, V. The strata S.I.S. I and II are composed of light-coloured lime rubbish and broken pottery, and the band between them is chiefly of ashes and broken pottery; they are roughly contemporary and were probably of quick growth. In them were found a few tablets and numerous clay jar-sealings bearing the impressions of cylinder seals, and amongst these were examples bearing the names of Mes-anni-padda and of his wife Nin-tur-nin. Strata S.I.S. I and II therefore date from, or immediately after, the First Dynasty of Ur. They run *unbroken* over the royal cemetery, the grave-shafts of which were dug from a ground-level that existed before the First Dynasty rubbish was dumped here; the latest graves of the cemetery therefore date from before the First Dynasty of Ur. (See Appendix by The Reverend E. Burrows, page 106, with plates XX and XXI.)

The lowest graves of the cemetery are cut down to or into, but never go right through, the dark stratum S.I.S. IV-V, which is composed of decayed red brick, pottery, and clay jar-sealings.¹ Here were found more tablets and seal-impressions very different from those found above the cemetery. The tablets bear a script which is semi-pictographic, more archaic than that of the seal-cylinders in the royal cemetery, rather more advanced than that of the tablets from Jemdet Nasr, which were found in association with three-colour pottery. The seal-impressions are most remarkable, and on them there are, as one might expect with objects of a character less directly utilitarian than tablets, more obvious survivals of the old pictographic writing. The collection made from this stratum is more fully described by Father Burrows in a separate section of the report; here I would only emphasize one or two non-epigraphical points. The stratum S.I.S. IV (with which goes S.I.S. V, scarcely to be distinguished from it) was formed and was buried beneath accumulated rubbish to a depth of at least five and a half metres before the cemetery came into being, for it is in that accumulated rubbish that the graves are made; there was therefore a sensible lapse of time between the depositing of the stratum S.I.S. IV and the digging of the earliest graves. In the stratum S.I.S. IV and belonging to it there were found four copper bull's feet from a large statue of which the body probably had been in wood; their style and technique are identical

¹ The character of the stratum is given as it exists at the point of the section; though it may run consistently over the whole area it is not likely that over the whole area the same sort of rubbish would have gone to its composition, and a stratum red in one place may well be grey or white in another and yet be the same stratum.

with that of metal sculptures from the royal tombs, and they prove that the culture represented by the seal-impression stratum is simply an earlier stage of that illustrated by the tombs—the static character of Mesopotamian culture is a commonplace. The stratum is unbroken; the lowest graves were cut down into it (the stone tomb PG/1631 fairly deeply and the great stone tomb PG/1236, found the season before last, more deeply still), but not through it; it forms a very definite division between the confused zone containing the cemetery and what lies below it, but it does not belong in time to the latter, because below it again comes a confused zone containing graves which were not cut through S.I.S. IV but dug down from a surface on which S.I.S. IV was subsequently deposited. The facts of stratification therefore show that on piercing the level in which the seal-impressions occur we must expect to find something materially older than they are.

What we did find was a new series of graves different in every respect from those of the royal cemetery. The bodies are definitely contracted, instead of being laid on the side with the hands brought up to the face and the body straight with the legs slightly bent in the attitude of a person asleep, the invariable rule in the royal cemetery and for long after that; the hands indeed are brought up close to the face, but the backbone is bent and the legs so flexed that the knees come parallel with the chin and the heels almost touch the pelvis [Plate XII, 2]. Such a divergence in the ritual of burial must imply a great difference in time or in religious belief or in race. The contents of the graves (of which thirty-five were found crowded together in a small area) are no less striking. Stone vessels were abundant and of types not found in the royal cemetery, lead cups were common in the place of the copper or bronze vases of the later period, and the clay vessels were all of new types marked by sharply angular outlines, lug handles and spouts [Plate XI, 2], while a pot of plain red burnished ware, resembling fragments which in the winter before we had found associated with sherds of painted Jemdet Nasr pottery, seemed a final argument for assigning the graves to that cultural phase which on other grounds would well fit in at this point of our archaeological sequence. This theoretical attribution was proved correct when a large pot from one of the graves, entirely covered with a coat of earth and salts, was cleaned in the British Museum laboratory and found to be decorated with the three-colour geometrical design characteristic of the Jemdet Nasr wares.

As work went on, the soil in which the graves were dug began to yield fragments of the black-on-white pottery of al-'Ubaid, which grew more numerous as deeper levels were cleared and continued until virgin soil was reached at about modern sea-level. The approach to virgin soil was heralded by alternate thin strata of black mud and greenish sandy clay; the true virgin soil was clay of a stiffer texture.

A second deep shaft was sunk by us farther to the northwest [see sectional drawing, Plate XIII] and gave consistent results. Here the cemetery zone had already been excavated in 1926–27; it lay higher than to the south and east, consistently with the slope of the original rubbish-heaps of which this was about the highest point, but the same underlying strata were encountered. Jemdet Nasr graves were found on the level of those in the first shaft. A little below these was

a single grave of the al-'Ubaid period containing a particularly fine handled and spouted pot with a curious design in black on a white ground [Plate XII, 1], and a plain hand-made vase with handle and trumpet spout. The grave lay half a metre above virgin soil and a metre and a half above sea-level. The excavation enabled us to assign the hitherto isolated Jemdet Nasr ware to a definite place in a sequence in relation to the royal cemetery on the one hand and the al-'Ubaid pottery on the other.

It was at first disconcerting to find that in these two shafts, sunk to virgin soil, there was no trace of the clay Flood-deposit, discovered the winter before only a short distance off to the east. The seeming anomaly can be accounted for in a way which explains what would otherwise have been a further difficulty. The rubbish-heaps into which the Jemdet Nasr graves were dug are shown by the pottery in them to be of al-'Ubaid date and must therefore be largely if not entirely pre-Flood; the top of this rubbish-stratum is as high or higher than the top of the clay deposit farther east. The slope of the strata from north-northwest to south-southeast and again from west to east shows that the pre-Flood rubbish-mounds thrown out from the inhabited island-site formed a sort of promontory running out from the island on the line given by our two shafts. Our pits sunk in 1928-29 on the northeast, that is, on the up-stream, side of this produced an eight-foot deposit of clay; last winter's excavation to the northwest, on the edge of the inhabited island (to be described later) produced an eleven-foot deposit of sandy silt. I would suggest that the rubbish-promontory, obstructing the course of the flood in a main channel, caused a back-water eddy resulting in the deposit, up to its own height, of the heavier silt borne by the water; elsewhere a smoother current deposited in a normal way its lighter content. And here a further caution seems to be called for. We have not yet made any trial pits in the plain to trace there the work of the Flood, but it is not to be supposed that over the plain the silt would attain anything like the depth that it does on the town site. Ur was an upstanding island and, like a tree-branch caught in a stream-bed, would intercept the silt and cause the formation of a much larger mound; over the plain the unimpeded waters would pass carrying the bulk of their silt down to the sea; the depth of sand found piled against and over the island is no criterion of the Flood's effect on the country at large.

THE FLOOD EXCAVATION IN THE TOWN AREA

The third part of our programme at the beginning of the season was to substantiate and add to the evidence already at hand for the historical character of the Flood, evidence derived from small pits sunk through the rubbish-heaps of the cemetery area. It was necessary to work on a larger scale and if possible at a point where house-remains would give a stratification more suited than that of rubbish-mounds to chronological argument. In order to simplify the process, I chose a site behind the cemetery and relatively low-lying. Work done here in previous seasons had shown that the area was much denuded by weather in later times and that the modern surface was reduced to that of what we called "Pre-historic terraces," that is, a ground-level older than the First Dynasty of Ur; here then we could expect quick results.

The area marked out for excavation was a rectangle measuring twenty-five by sixteen metres; the sides were cut as straight as the soil allowed; the maximum depth reached was 19.30 metres. The drawing on Plate XIV gives a medial section through the length of the pit (southwest by northeast) and is based on elaborate measurements and notes; the small section is of the northeast end of the pit along a parallel line farther to the southeast, almost against the pit's side, where it happened that more early graves were encountered. In the upper part of the excavation eight distinct building levels were found; walls were of mud brick, floors of beaten clay, and these were in such good condition that no confusion of strata was possible. Plans were made of the buildings in each level, but being of little intrinsic interest are not published here. It should, however, be remarked that as the walls were well-built and sometimes particularly solid, attaining a thickness of as much as four metres, a fairly long *floruit* should be assigned to each level, and the total lapse of time represented by the eight levels must be considerable.

The uppermost level contained buildings whose walls were constructed not with shaped bricks but with lumps or basketfuls of stiff clay set in clay mortar, a form of *terre pisée* building which we sometimes find in the shaft-constructions of the royal cemetery, and in this and the succeeding level, in which the walls were of plano-convex mud bricks, the pottery was just what may be found in the earlier graves: stone vases and a few copper tools showed similar analogies. Further evidence was given by the pottery ring-drains which were numerous at this level. Most of them could be dated by the pottery packing which filled the space between the rings and the sides of the circular shaft in which the drain was contrived, and while some of them were as late as the Larsa period the majority could be attributed to the First Dynasty of Ur. Now these seepage drains may vary in length from five to ten metres or more; few even of the earliest found here went down more than three metres below the modern surface, and it can fairly be assumed that the houses which they served stood on a level at least two metres and probably four metres above that modern surface. We have then to allow for a vertical interval of at least two metres between the highest surviving ruins and the foundations of the walls of the First Dynasty of Ur, and at a normal rate of accretion must date our ruins certainly not later than 3200 B. C.; if the interval was twice as great (as it probably was) the highest ruins must be correspondingly earlier. The evidence of the pottery and other objects will not allow of our assuming more than the three upper levels of buildings to be synchronous with the royal cemetery.

At 1.25 metres down, but let into the floor and therefore belonging rather to the level above, namely A, were some burnt bricks not plano-convex but flat and closely resembling those used in the vault of the tomb of Queen Shub-ad; at 1.40 metres down was a burnt brick, also flat but with a long finger-made groove in its upper face, a type never found in the cemetery. The walls of the second and following strata were of mud bricks, plano-convex and often laid herring-bone fashion [Plate XV, 1].

In stratum E, on a well-made clay floor at 12.40 metres above sea-level, there was a large collection of stone and clay vases. The clay pots, of which many were spouted, were decorated with cable mouldings on the sharply defined shoulder, with "gashed" ornament, and with incised hatching. Many were of "reserved

slip ware," that is, the vessel had been dipped before firing in a bath of thin slip and this had then been wiped off in streaks, leaving a rough pattern made by the contrast between the finer and lighter coloured slip and the darker and coarser body-clay. All these types are strange to the cemetery.

At 10.80 metres above sea-level there began to occur a tall slender clay goblet set on a short stem with circular foot; fifty centimetres lower down it was the commonest type found, the broken examples numbering hundreds; at 9.70 metres it disappeared. This type, equally common and equally short-lived, is found at Kish between five and six metres below plain level.

At this level, incised wares were common. At 9.80 metres came the first example of Jemdet Nasr three-coloured pottery and several of buff or pink ware with horizontal red paint bands; a few examples of plain burnished red went with these, and by 9.80 metres above sea-level a plain plum-coloured unburnished ware which had occurred sporadically in higher strata was fairly common. At 9.20 metres began a pink ware with horizontal chocolate bands which is probably only an accidental variant of that with red bands on pink or buff; it was common down to 8.60 metres, and thereafter was found, but less frequently.

At 9.80 metres above sea-level there were found fragments of a small bottle of glazed frit, originally blue but now bleached to a yellowish white; it had a pear-shaped body and broad flat rim, and was decorated on the shoulder with impressed chevrons. On the same level were two clay jar-sealings with impressions of the naturalistic type found in "Seal-impression stratum iv" in the cemetery pit between the tomb stratum and that of the Jemdet Nasr graves; a similar seal-impression was found at 8.60 metres above sea-level and two more as low down as 7.60 metres.

On the 8.80 metres level there were found three fragments of Jemdet Nasr pottery, and the proportion in which it occurred in relation to the other decorated wares, pink ware with red bands, plain burnished red, and plain unburnished plum-coloured, rapidly increased until on level 8.30 metres it predominated over the sum of all these. Immediately below this, at level 8.20 metres, it disappeared over almost the whole area, and though in one part of the excavation it continued down to 7.80 metres this was the lowest point reached by it. At Kish the Jemdet Nasr pottery comes immediately below the slender goblet type, at 6 metres below plain level, and continues to 7 metres.

Returning to the sectional drawing, we shall see that the slender goblet type, the incised wares, and the burnished or unburnished plain red correspond to the lower building levels, where there had also been a change in the size and shape of the bricks in the walls, which were now flat instead of plano-convex. At 10 metres above sea-level the buildings stopped and there began a belt nearly five and a half metres thick composed of ashes and broken pottery; embedded in this were the remains of potters' kilns, lying one above the other and proving that an industry had been practised here for generations. It is in the upper part of this stratum, made up of wasters from the kilns and the ashes from their furnaces, that we find first the pink pottery with red bands and then the Jemdet Nasr wares. All these vessels were wheel made, and at 9.90 metres above sea-level there were found the fragments of a potter's wheel made of clay, a thick disc with its pivot-hole smoothed

with bitumen and small holes near the circumference at one point, doubtless for the stick which served to turn it; it was a wheel heavy enough to spin of its own momentum. The kilns were built of fire-clay which by the heat had been turned into slag coloured from red through yellow and green to white. In one of them the vessels for the last firing were found stacked inside, still in place [Plate XV, 2]; they were rough hand-made bowls with straight walls and flat rims (the same type occurs in the fifth archaic level at Warka and also at Nineveh). Since this was the highest of the kilns the technique is really a survival, but lower in the stratum a complete change took place and we pass from wheel-made to hand-made pottery. At level 8.60 metres the first two sherds of al-'Ubaid ware occurred, and three more in the next fifty centimetres (except that at the southeast end of the pit there was at 8.30 metres a sort of pocket containing a fair number of fragments); between 8.10 metres and 7.50 metres there were perhaps a dozen. Below this the al-'Ubaid fragments were about forty per cent of all the coloured wares, the rest being plain red nearly always burnished but with a few plum-coloured pieces; between 7.30 metres and 6.80 metres there were counted sixty-four of al-'Ubaid as against seventy-nine red, between 6.80 metres and 5.20 metres three hundred and seventy-nine as against one hundred and fifty-five, and below this virtually the whole of the painted pottery is of the al-'Ubaid type.

A burnt brick found between levels 7.80 metres and 7.30 metres above sea-level was flat and thin with two small holes drilled through it towards one end; the type has been noted at Kish. At level 8.60 metres there was found a rectangular flat brick measuring twenty-one by nine and a half by six centimeters, made of cement; at 7.70 metres [Plate XVI] there was a circular basin, perhaps used for puddling the potter's clay, lined with cement bricks measuring forty by eighteen by eleven centimetres, and bricks also of cement measuring twenty by eight by eight centimetres were found at level 6.60 metres. That cement bricks should have been employed at this early period is a most remarkable fact—that it was no unusual thing is shown by our excavations at Meraijib.

The kiln stratum produced, besides vast quantities of pottery, a few copper tools, clay tools, smoothers, etc., used in pot-making, a few beads, chiefly clay copies of the long spirally-marked beads cut from the core of the conch shell, cones for wall mosaic, and three objects calling for special notice. One of these, found at 7.90 metres above sea-level, was a bowl of glazed frit, broken but nearly complete, and preserving the pale turquoise colour of its glaze. Contemporary with the Jemdet Nasr pottery, this is the earliest example that we know of a glazed vessel (though earlier glazed beads are found in Mesopotamia and probably in Egypt, though synchronization for such periods as this would be hazardous, to say the least), and may well raise the question whether such were first manufactured in the Euphrates valley. Ten centimetres lower down in the same stratum was found a remarkable cylinder seal of dark steatite, the oldest that we have in a well-authenticated setting. Its archaic character [Plate XVIII, 2] is obvious, but the subject is difficult to determine. On exactly the same level as the cylinder seal was found a steatite carving in the round of a wild boar [Plate XVIII, 1], an astonishing work of art of the Jemdet Nasr age. The animal is represented as crouching down with its chin resting on its fore hooves; the modelling is admirable, and the very

definite convention which informs the work is relieved by touches of vivid realism, as, for instance, by the way in which the upper lip is drawn up in folds to expose the tushes. A flat groove running under the belly and up the flanks was clearly for a support; by analogy with later representations of animals, in which they are so often associated with bushes or water-plants, it is not unreasonable to suppose that the support took the form of flat reed-leaves in copper or gold—the boar would then be shown crouched in a reed-bed, his natural lair. In the top of the beast's back there is a cup-like hollow with raised rim; whether this was to hold a liquid used in religious ritual, as has been suggested, or was a socket for a statuette of a god, as seems to me more likely, there is nothing to show. Figures of couchant animals with a similar socket in the back occur nearly as late as the Third Dynasty of Ur.

At about 4.50 metres above sea-level the kiln stratum ceased abruptly, and we came upon a stratum more than three metres thick of clean water-laid sand. It shows no internal stratification, is uniform almost throughout its whole thickness (there is near the top a darker band which may indicate a temporary surface, and there are one or two "pockets" of darker soil and rubbish which are strictly contemporary with the sand and merely result from an eddy), and, corresponding as it does with the heavier clay belt farther to the east, must be like it the deposit left by the great Flood.¹ It rested on a stratum of irregular thickness composed of refuse resulting from human occupation—ashes, decayed mud-brick, potsherds, etc. This went down almost to sea-level; below it was a belt about one metre thick, of mud, grey in colour above and darkening to black below, much of which was clearly due to the decay of vegetation. In it were potsherds, sporadic above but becoming more numerous lower down and massed thickly at the bottom, all the fragments lying horizontally; they had the appearance of having sunk by their own weight through water into soft mud. At a metre below sea-level came stiff green clay pierced by sinuous brown stains resulting from the decay of roots; with this all traces of human activity ceased.

Evidently this was the bottom of Mesopotamia. The green clay was the floor of the original marsh bordering the island occupied by the earliest settlers in this

¹ Specimens of the sand and clay from the two deposits left by the Flood were submitted to the Petrographical Department of the Geological Survey, Jermyn Street, London, for microscopic analysis. Dr. H. H. Thomas's report was as follows:

"The soil specimens and silts have been examined and I find *Specimen Z* is a fine grained, closely laminated silt, the laminæ showing definite current-bedding and grading of particles. On a cross-section certain laminæ may be seen to wedge out in a manner that can only be accounted for by the action of gentle currents. In a distance of two inches the laminæ may tail off from a thickness of one or two millimetres to the merest film. The average thickness of the laminæ is something less than a millimetre. The silt has a definite parting parallel to the surfaces of the laminæ, which are seen to be covered with the minutest scales of detrital mica.

"In constitution the material is mainly fine angular quartz, with much finely divided mica, fairly abundant green hornblende, with some augite and magnetite. The particles are somewhat variable in size, as would be suggested by the lamination of the sediment. They range up to 0.1 mm. but mostly they have much smaller dimensions.

"*Sample X* has practically the same constitution and texture as *Z* except for the absence of lamination.

"*Sample Y* is of a fine clay material with particles mainly under 0.01 mm. and highly micaceous. It is quite possibly water deposited, for it would be difficult to account for it in any other way.

"The absence of lamellation might suggest wind-blown dust, but there is a complete absence of any larger or rounded particles which usually occur in æolian deposits.

"The material of *X* and *Y* appears to be derived in part from a series of hornblendic and augitic igneous rocks."

Samples *Z* and *Y* are from the pit excavated this year, *X* from the shaft sunk in 1928-29.

part of the valley; it was dense with reeds, and the mud of the stratum above was due to the decay of their stems and leaves and to the throwing into the water of rubbish from the island, this of course including the broken pottery. Such accretion slowly raised the bottom of the marsh until it came above sea-level; as soon as this occurred and dry land was formed (the surface of the mud was more gritty and rather like gravel), the occupants of the island spread down over it. At the northeast end of our excavation the accumulation of debris was divided horizontally by three definite floors of beaten clay, showing that occupation had been continuous for a fairly long period. At the southwest end there was a heap of fallen bricks from a pre-Flood building. The bricks, originally of crude mud but hardened by some accidental conflagration and thereby preserved, were flat and rectangular, set in mud mortar. At a point half-way across the excavated area there was a mass of clay lumps burnt red and black; each lump was smooth on one side, and there either flat, convex, or concave, and on the other side bore the deep imprint of reed stems; they were fragments of clay daub from a reed building. On the strength of discoveries made at al-'Ubaid I had previously pointed out that the characteristic hut of the pre-Flood Mesopotamian would be just that hinted at by the Utanapishtim legend in which the god, speaking to the hero's house, apostrophizes it as "Reed-hut, reed-hut"—a structure of reeds and mats plastered with mud: here we have the remains of precisely such a structure. What is of peculiar interest is the fact that the fragments of clay are not all flat on the outer surface, but often rounded. The hut would be built as such huts are built today: a framework would be put up of fascines of reeds tied together, and over this would be fastened mats, either of woven reed leaves, as is ordinary now, or of parallel reed-stems, the type of mat common in North Syria. Here we have parallel reed-stems probably tied on to horizontal cross-pieces. The coating of clay did not obliterate the structural features of the building; to judge from the fragments found it emphasized it rather than otherwise, and the vertical fascines were reproduced as attached half-columns, the horizontal bands as plain moulding. The flatness of the mud wall was therefore relieved by a system of ornament which corresponded exactly to the lines of its structure. If that is so, we can argue from it to a real architectural sense in the builders of the pre-Flood era. I would further suggest that this primitive wattle-and-daub construction is at the bottom of that convention whereby, in the Larsa period and later, the walls of a temple may be decorated with attached half-columns. I have attributed this form of ornament to the influence of half-timber construction on brickwork; that I believe to be correct, but the frame-and-matting hut is simply a cheaper variant of the half-timbered house, and the mud plaster affords analogies which the bricklayer would be more apt to follow.

The house debris of the antediluvian level produced besides pottery, numerous stone pounders and grinders, flint hoes, a fragment of a finely polished black-and-white marble vase, clay sickles, clay models of tools of which the originals were certainly in metal [Figure A], steatite beads, shell beads, and two beads of amazonite, the nearest known source of which is the Nilghiri hills of central India, though it is found also in Transbaikalia. These would seem to point to an overland trade which, in the pre-Flood age, must strike us as amazing. The clay cones for wall

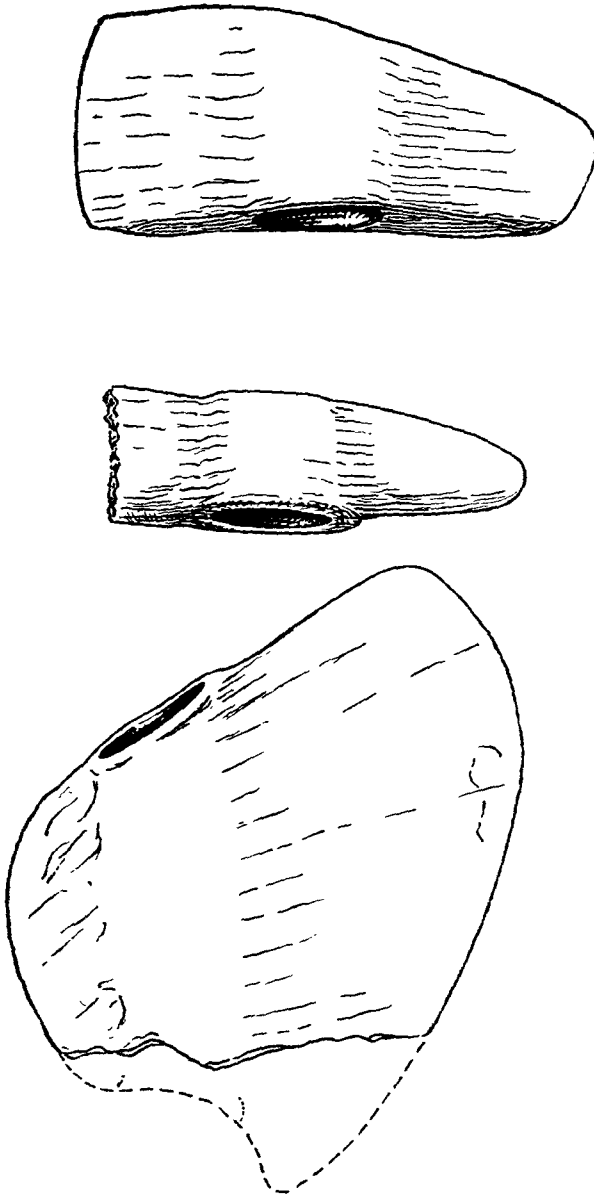


FIGURE A

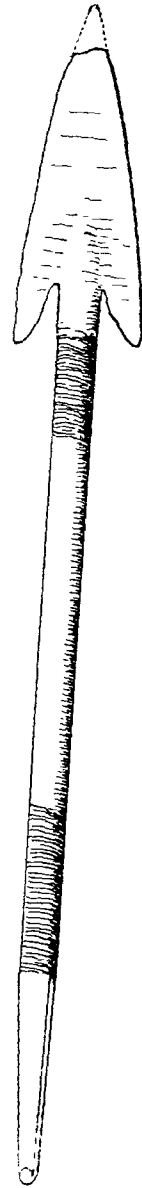


FIGURE B

mosaic occurred here as in the higher levels and gave further proof of sophisticated culture.

The pottery of the pre-Flood occupation level was of the types known to us at al-'Ubaid. Here, and more noticeably in the marsh stratum, the thin wares decorated with black on white or green tended to have ornament lavishly spread over the whole ground, bold in design with occasional intrusion of naturalistic and animal motives. With them there were plain hand-made vessels of very light drab clay, for the most part thin and skilfully turned, and fragments of large jars with thick walls and decoration in black or greenish drab or in chocolate on pinkish drab clay. Many of the pots were spouted, and a fair proportion had loop handles across the mouth. The vertical reeded handles of the Jemdet Nasr stratum were absent in the purely al-'Ubaid level. But about the pottery of the early period the fullest information was given by the graves.

In the sand deposit left by the Flood there were graves. Some of them lay high up in the deposit, between levels 2.50 and 4.50 metres above sea-level, then there was a definite gap, and a fresh series of graves going down through the occupation stratum almost to sea-level. The latter must have been dug when the top of the sand formed the ground surface; the former when a considerable layer of kiln rubbish had formed above the sand; the different levels must correspond to a difference in date. That this was so was proved by the pottery. In the lower graves the painted pots were in the majority, and their decoration was generally rich, with a tendency to cover the surface; even in the plainest types, the cups, the field between horizontal bands of colour was relieved by the introduction of small decorative elements, and in the open plates a filling-ornament would occupy part of the ground within the black border. In the upper graves there was never more than one painted vessel, a cup, and that would bear nothing more elaborate than a plain horizontal band, while of the plain vessels, often numerous, the most common type was a sort of chalice on a splayed foot which was never encountered at the lower level. The graves represent two late stages in a culture of which the earlier is given by the contents of the occupation-level and the marsh. The progressive degeneration of ornament and the introduction of certain new types of plain pottery are the most obvious distinction of the stages, but comparison with the remains found at al-'Ubaid itself suggest that the earliest stage was further marked by the prevalence of incised decoration and combed wares.

Turning to the graves themselves, the most surprising feature is the attitude of the body: the skeletons all lie on the back, rigidly extended, with the hands crossed over the pelvis, a position not found at any later date. Of the upper series, the furniture consists of one cup of painted ware, with simple horizontal bands, one or more open plates of plain light drab ware, and one or more chalices of drab or red clay; sometimes there is a bottle with globular body and upstanding rim. On the body there may be necklaces or armlets of small ring beads in white shell or steatite. In two graves there were squat pear-shaped mace-heads of limestone and steatite; in one a fine polished stone hammer-axe and in one a copper spear-head of harpoon type [Figure B]. The graves of the lower series were more elaborate. Sometimes the bottom of the pit was paved with fragments of pottery making a rough mosaic on which the body was laid; painted pots predominated,

and there was considerable variety in shape both in these and in the plain wares (the chalice, as already stated, did not occur), and the "kettle," with long spout and ring handle, was particularly common. Beads showed little change from the later period, and no weapons were found. But the most remarkable objects were the terra-cotta figurines, of which six were recovered from the graves [Plate XIX], while fragments of similar figures were found in the occupation-stratum below, to prove that in this respect the people of the earlier grave-group were carrying on a tradition which goes back to the pre-Flood age. The figures vary in height from fourteen to seventeen centimetres. Some are of hard-burnt greenish clay, with markings in black paint, others of soft, lightly fired, white clay originally coloured after firing with red and black paint, nearly all traces of which have disappeared, and these have wigs of bitumen applied to the head. All the figures are female, nude, and either holding an infant to the breast or resting their hands on their hips; in all cases the body is well modelled, though there is a conventional exaggeration of the width of the shoulders in contrast to the slender proportions of the rest. The head can only be described as monstrous: the back of the skull rises in an elongated dome (which in the infant is flattened into a fan shape), while the face is more reptilian than human, with eyes set violently aslant. Personally, I cannot believe that the artist who showed such skill with the bodies could not have succeeded better with the heads, supposing that his intention was to represent women, and I am driven to think that the grotesqueness is deliberate and that the subject is some kind of half-human demon. That the figures have a religious significance is certain, and if they really represent a bestial type their importance as documents for the pre-Flood religion is even greater. One head, found below the Flood level, is of a different type, the face being round and flat and the eyes horizontal, but in this also there is the queer elongated formation of the skull. On the painted figures there are black bands round waist, wrists, and neck, but these probably represent belts and strings of beads, and need not imply any dress; certainly the other figures are definitely nude. On the shoulders of all, both back and front, there are marks which in the painted figures are in black, in the others rendered by small attached lumps of clay; these I take to be coarse tattooing, like the cicatrices of some modern tribes of savages.

At 5 metres above sea-level there was found a figurine of a bird with outspread wings, of green clay with black paint markings, intended to be mounted on a stick passing through a hole in its body. At various depths there were animal figurines, mostly of sun-dried clay, some of baked clay with black paint markings; they represent domestic animals, sheep, goats, cattle, and dogs, and presumably have some religious significance.

A little further light was thrown on the late al-'Ubaid period by some experimental work done at a site called Meraijib, about eleven miles to the south of Ur. Our attention was drawn to it by the discovery, made by native seekers after treasure, of a grave containing fine stone pots very similar to those from our Jemdet Nasr graves. With the approval of the Director of Antiquities, work was undertaken on the site, which, however, proved to be too denuded to repay excavation. The pottery was a mixture of al-'Ubaid painted wares, with some red burnished pottery, and much having incised decoration; a few examples of the later "reserved

slip ware" were also found. The buildings, of which little survived, were constructed, at least as regards the lower part of the walls, of rectangular cement bricks resting (for the mound on which they stood was of loose drift sand) on a mud-brick platform. In one of the houses there were found stone grinders which had evidently been used with a bow drill for hollowing out stone bowls; in another there were quantities of clay roundels, each having a hole pierced through near the rim; strings had been passed through the holes to tie the roundels together in sets of eight or more. Such clay roundels are found at all early levels in the Flood pit at Ur, but their use cannot be determined.

As a result of the season's work we can draw up the following sequence, which accounts for nearly every type of pottery as yet known in south Mesopotamia:

- (1) The First Dynasty of Ur, about 3100 B. C.
- (2) The Royal Cemetery, about 3500 to 3200 B. C.
- (3) The period with "reserved slip ware."
- (4) The period with the tall clay footed goblet.
- (5) The lower seal-impression period, about 3750 B. C. (3).
- (6) The period of pink pottery with red bands.
- (7) The Jemdet Nasr Period.
- (8) The period of plain red pottery.
- (9) The al-'Ubaid period, phases II and III, which are post-Flood.
- (10) The Flood.
- (11) The al-'Ubaid period, phase I.

Between (2) and (3) there is a gap, during which the culture seems to be closely akin to that of (2). Stages (5) and (6) may well be synchronous. Stage (8) is one of transition, and at present seems to pass insensibly out of (9) and into (7), but does have a short independent existence.

In order to avoid a confusion already prevalent I must refer to the discovery of a diluvial deposit at Kish, which also has been held to represent the Flood of Sumerian legend. This deposit, about eighteen inches thick, is certainly not the same as that at Ur described in this and my last reports. It is dated by the discoverers between 3400 and 3200 B. C., and runs unbroken over the cemetery, which they date at 3400 to 4000 B. C.¹ The cemeteries at Kish and at Ur are shown by their contents to be of much the same date, although that of Kish may well go back somewhat earlier for its beginning (so as to cover the gap between my stages (2) and (3) above); Langdon's positive dating appears to me to be much too early. The main point is that the Kish flood deposit comes on the top of a cemetery whose latest date cannot be far removed from the latest date of that at Ur; below the Kish cemetery comes a level containing masses of fragments of the tall goblet type of vase (my stage 4), together with plain red pottery, and below this again comes the Jemdet Nasr level. In the particular spot chosen for deep excavation at Kish, Jemdet Nasr occupies the lowest stratum resting on virgin soil, and there is no vestige of al-'Ubaid occupation. At Ur, the Flood level comes under al-'Ubaid II, and is therefore separated from the Kish flood by eight different cultural strata,

¹ S. Langdon, *Excavations at Kish, 1928-29*, in *Journal of the Royal Asiatic Society*, 1930, page 601; quoting M. Watelin.

which in time must mean a very long interval indeed. Actually there is in the same pit at Ur between levels 14 and 15.50 metres above sea-level a waterlaid deposit filling all the space between the walls; it is composed of minute strata averaging less than a centimetre in thickness, and must have resulted from continual flooding of the same area: stratigraphically this might conceivably represent the same flood as has left its traces at Kish, and if so the time-gap between it and the great flood deposit between levels 1 and 4.50 metres above sea-level is even more obvious, though not more real, than if we simply contrast the two sites. It must be remembered that floods are common things in Mesopotamia; if we are to connect extant traces of a flood with that described in the legends, we must look for something (a) so vastly surpassing the normal that the memory of it endured through centuries, and (b) so much earlier than any written record of it that its story had become miraculous and the gulf had to be bridged by dynasties of fabulous longevity, while (c) its social effect must have been such that for the later historian it marked an epoch. The conditions (a) and (b) are surely better met by the magnitude and position of the Ur deposit. As regards the condition (c) Langdon argues that the Kish flood does close an epoch, on the ground that the cemetery below the deposit "contains pottery types almost totally different from those above the Flood stratum." This is of course true of the part of the site excavated by Watelin, but breaks of continuity in archaeological stratification are quite normal, as every digger knows, and Langdon's deduction from this negative evidence disregards everything that we know about early Sumerian history. The Kish graves are admittedly homogeneous on the whole with the Ur graves; the upper strata missing at Kish are present at Ur, and, so far from the culture represented by the graves stopping short with the end of the cemetery period, it is carried on with remarkable continuity into the First Dynasty of Ur, which on Langdon's own dating is post-Flood. The Sumerian annalists believed that between the Flood and the First Dynasty of Ur there came two very long dynasties, of Kish and of Erech. To make the Flood occur shortly before 3000 B. C. is to reject a tradition which *a priori* should have some foundation in fact; and to assume that, occurring then, it altered the course of civilization is absurd, because there is no such alteration. If the Ur deposit marks the Flood of Sumerian legend the introduction soon afterwards of the Jemdet Nasr pottery, almost certainly a foreign fabric, may be taken to satisfy the condition.

APPENDIX

TABLETS AND SEAL-IMPRESSIONS

BY E. BURROWS

The bulk of the material came from one site. The vertical southwestern side of the cemetery excavation showed a well-defined succession of sloping strata containing rubbish thrown down from the old town westward of the cemetery. In several instances the strata so discovered could be correlated with strata within the cemetery excavation. Many of these strata contained tablets and, especially, numerous jar-sealings, i. e., lumps of clay put on the tops of jars, often showing on the under side the impression of the jar, and even of the linen cover and string, and impressed on the upper part with a cylinder seal or other distinctive marking. Eight "seal-impression strata" have been distinguished with greater or less clearness: they are designated S.I.S. I to S.I.S. VIII.

There is evidence that S.I.S. I ran unbroken over the whole main cemetery. If S.I.S. I can be dated we thus have an important *terminus ad quem* for the chronology of the cemetery. Now a fine jar-sealing from S.I.S. I bears the inscription *Mesannipadda*,¹ the well-known name of the founder of the First Dynasty of Ur [Plate XX, 1]: another gives *Nin-tur-nin*, already known as the designation of the wife of Mesannipadda [Plate XX, 2].

S.I.S. II and III do not differ much in contents from S.I.S. I. About eighty jar-sealings and a few tablets were recovered from these top strata.

With S.I.S. IV we come to another and much earlier epoch. This, by far the richest stratum, produced 62 tablets and fragments and over five hundred jar-sealings. These objects are similar to the few jar-sealings and the many tablets found in the preceding year in the rubbish wherein were dug the early graves of the cemetery. The contemporaneity of the two groups is also favoured by the stratification. For the *terminus a quo* of the royal cemetery we have, therefore, the evidence afforded by S.I.S. IV. The date of the tablets found in 1928-29 was discussed in the last report. The material on which to form a judgement is now greatly increased.

The five hundred seal-impressions from S.I.S. IV are exceedingly interesting. They are very similar in a general way, and sometimes in detail, to those found at Susa and published by L. Legrain. The apparent connexion between Ur and Elam, and the correlation of S. I. S. IV with Susa II, raise important historical and chronological questions.

Many forms characteristic of the present collection are new. The following is a summary account of it. Divinities and heroes are hardly, if at all, represented; human forms are not very common; animals are frequent, especially the antelope, capridae, and the like, and the scorpion. Among more elaborate representations is the remarkable chariot scene [Plate XX, 4], and many impressions showing a cattle-byre or dairy scene like that of the frieze of el-'Obeid (*Ant. Journ.* iv, 342),

¹ The inscription is puzzling: *Mesannipadda lugal Kiš-ki dam nu-gig* = Mesannipada king of Kish or universal king; [his] wife the hierodule (or husband of the hierodule).

the gate, however, being barred with three, four, or six bars [Plate XXI, 3]. A large proportion of the designs are linear patterns, geometrical or arabesque, often curiously complicated and ingenious [Plate XX, 3]. Sometimes script signs occur in combination with these decorative patterns. There are besides many impressions which are entirely inscriptions. So far as made out, these contain ideograms of cities: Kish, Adab, perhaps Ur, and frequently Larsa [compare Plate XXI, 2]. Of one inscription many of the signs seem to be otherwise unknown [Plate XXI, 1]. Two or three inscriptions have pure pictographs mingled with the writing signs, for example, the bird in Plate XXI, 2.

Many jar-sealings are stamped with circular impressions, sometimes plain and sometimes having a decorative element—most often a rosette. In many cases, at least, the stamps were made by the ends of the cylinder-seals. Numerous jar-sealings, instead of being impressed by a seal, were scratched or incised with rough markings, or, more rarely, definite signs. Counterparts of certain sealings characteristic of S.I.S. IV have been found recently in an early level at Warka.

S.I.S. V, so far as known, is similar to S.I.S. IV. A pit in the western corner of the site cut three lower strata, S.I.S. VI, VII, VIII. The writing on the few tablets here found hardly differs from that of S.I.S. IV; but the seal-impressions seem to indicate a more primitive art, and forms characteristic of S.I.S. IV are generally absent. Plate XXI, 5, represents a building from this remote period (S.I.S. VIII); and Plate XXI, 4, also S.I.S. VIII, is the first example of what is provisionally called the leaf-pattern which, with a difference, is exceedingly frequent in S.I.S. IV.

The jar-sealings number in all about six hundred and fifty, without counting the stoppers that were marked otherwise than by seal-impressions. Only one cylinder seal was found in these strata, and that was of clay, unpierced. There were two stamp seals, also of clay.

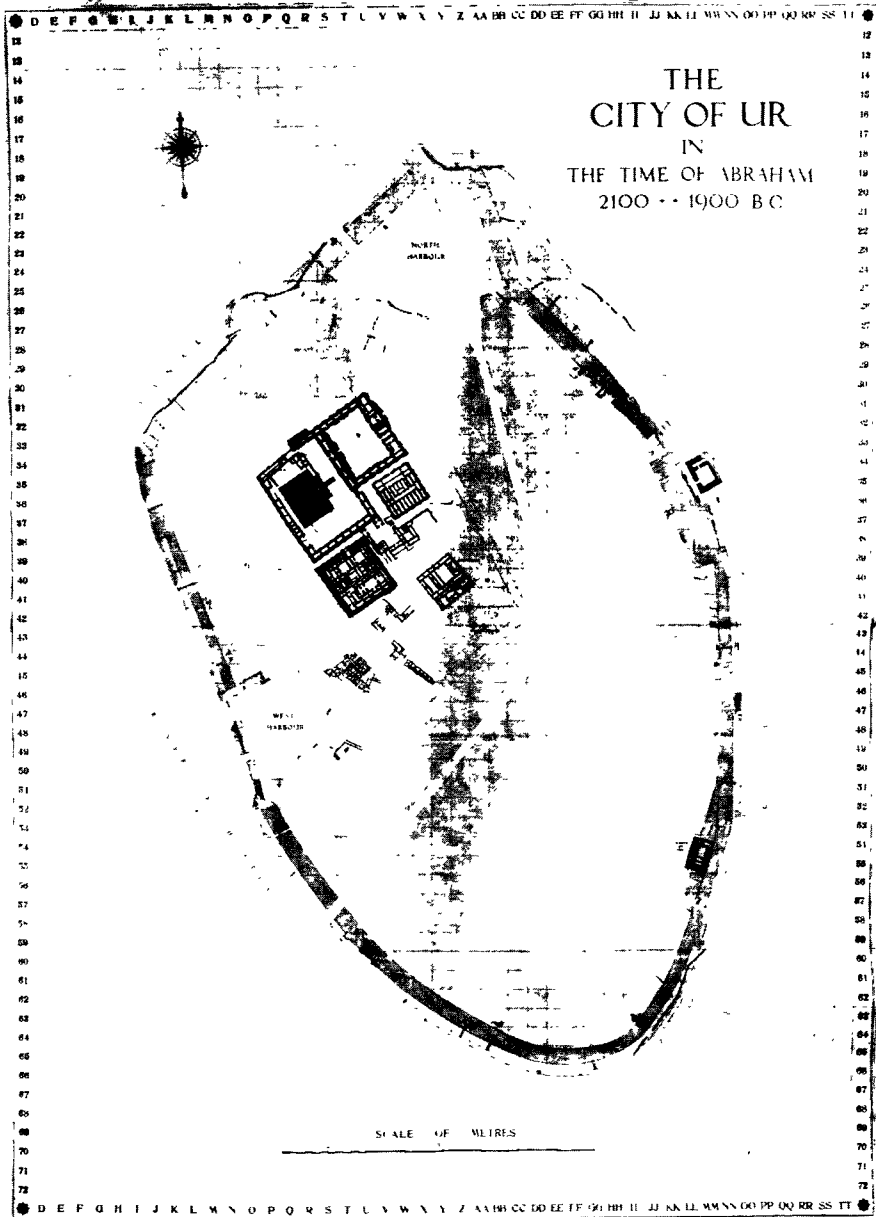


PLATE VI.—WOOLLEY: Excavations at Ur, 1929-30.

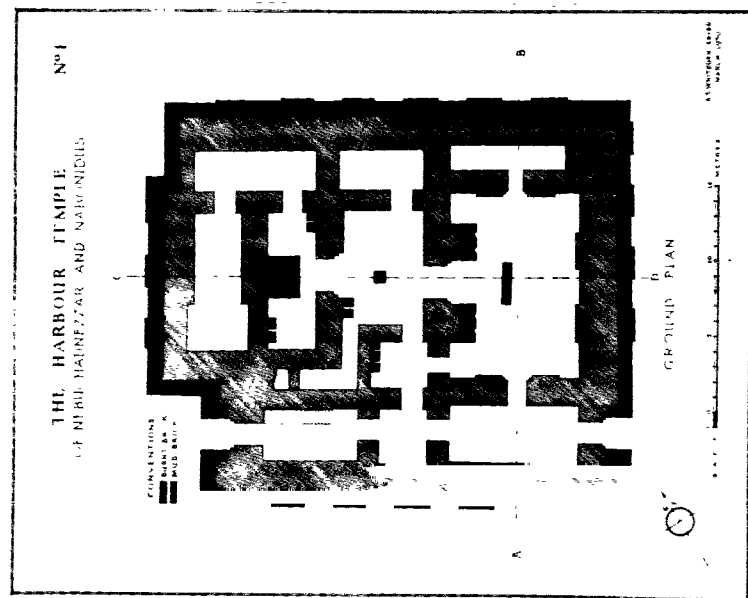


FIGURE 3.

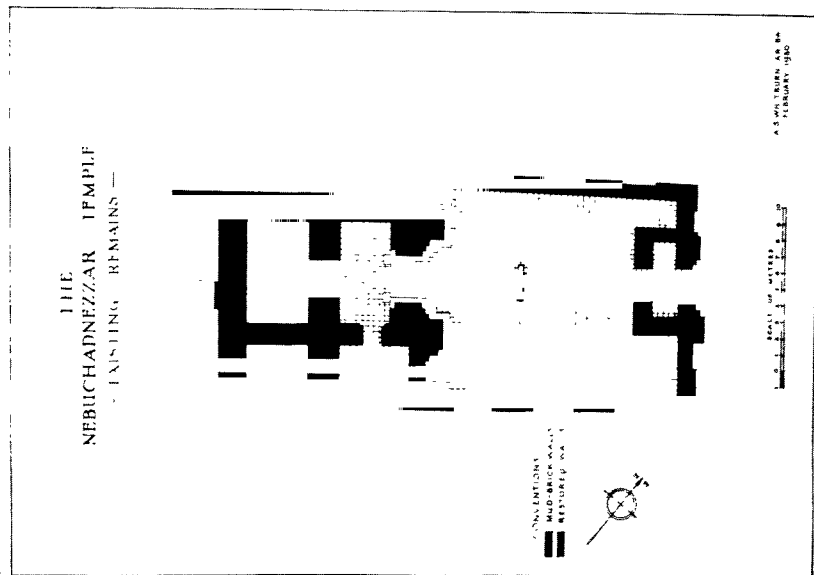


FIGURE 4.

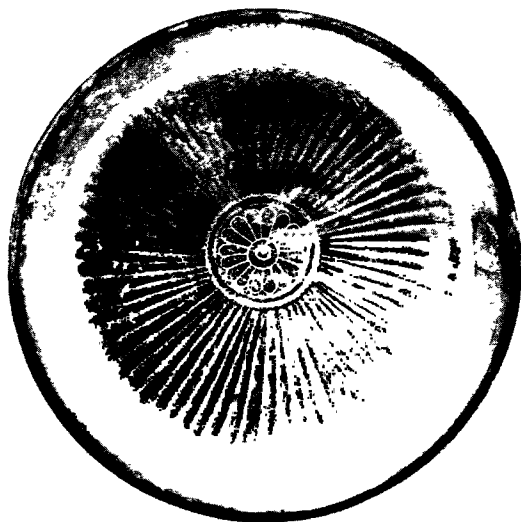
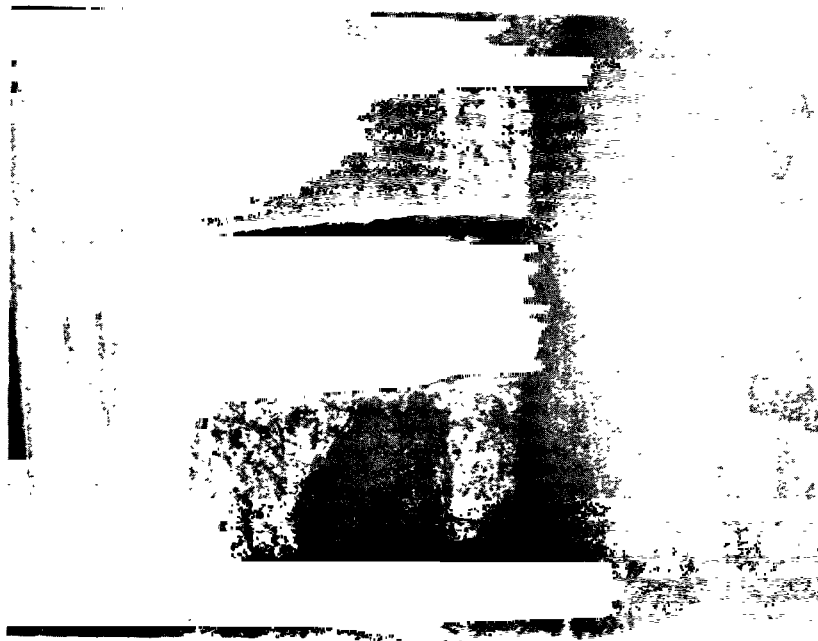


FIGURE 5.—Silver Bowl, Persian Period.



FIGURE 6.—Brick Column of Third Dynasty Date.



FIGURES 7 and 8. Interior of The Harbour Temple after Roofing.





FIGURE 9.—Foundation Deposits of Rim Sin in the Enki Temple.

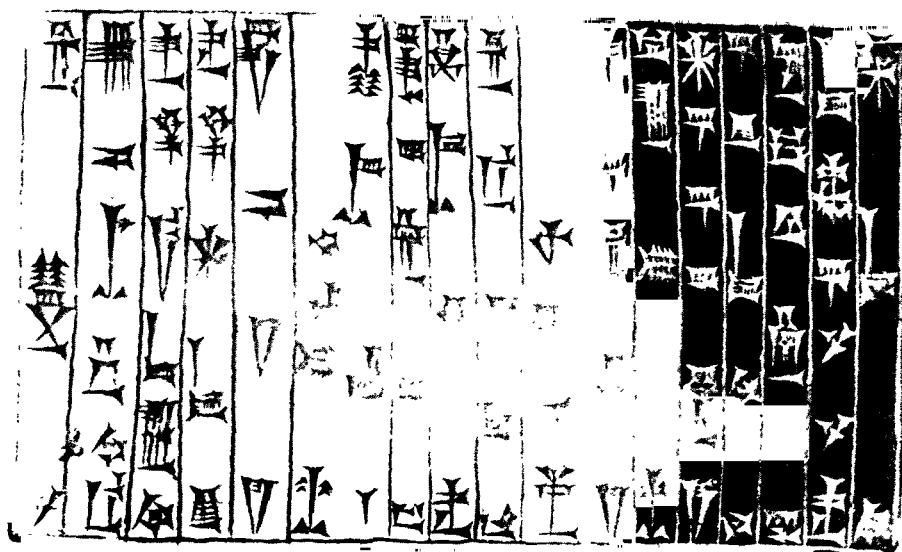


FIGURE 10.—Steatite Foundation Tablet of Rim Sin.

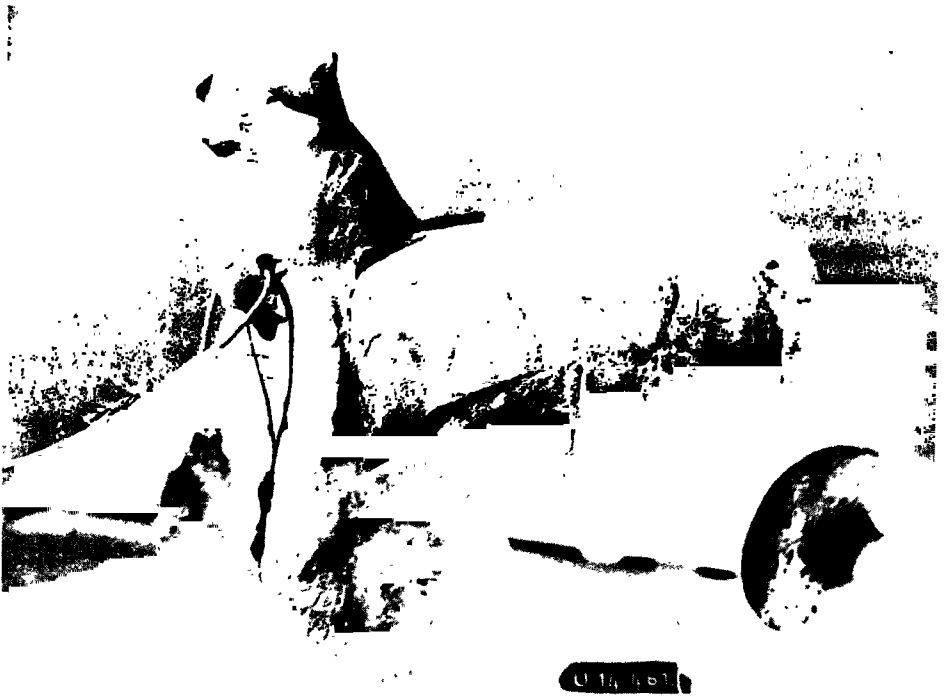


FIGURE 11.— Clay Zoomorphic Vase.

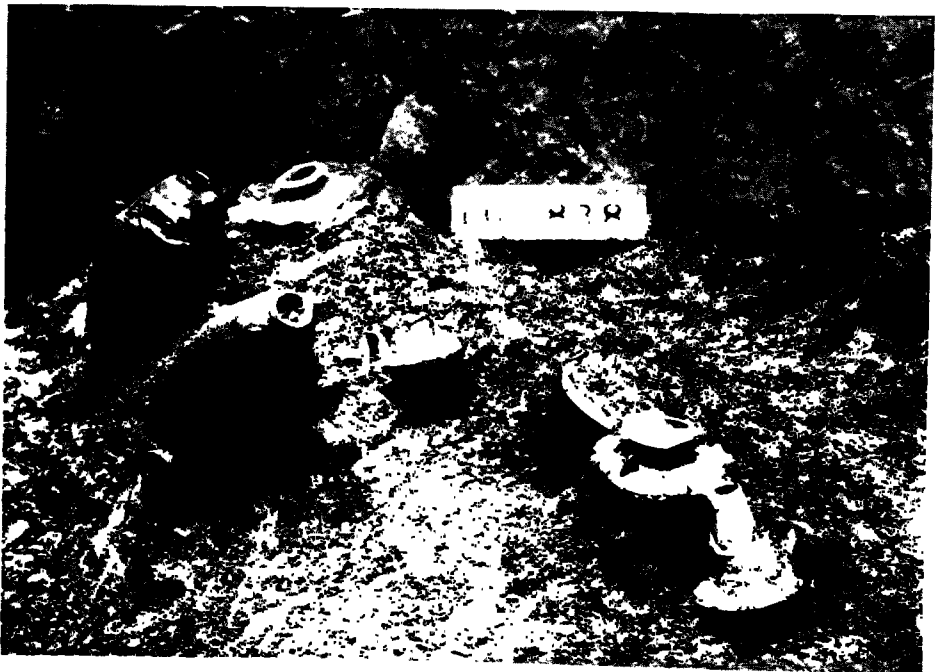


FIGURE 12.— Grave of Jemdet Nasr Period.



FIGURE 13.—Painted Clay Pot, Pre-Flood.



FIGURE 14.—Crouched Burial of Jemdet Nasr Period.

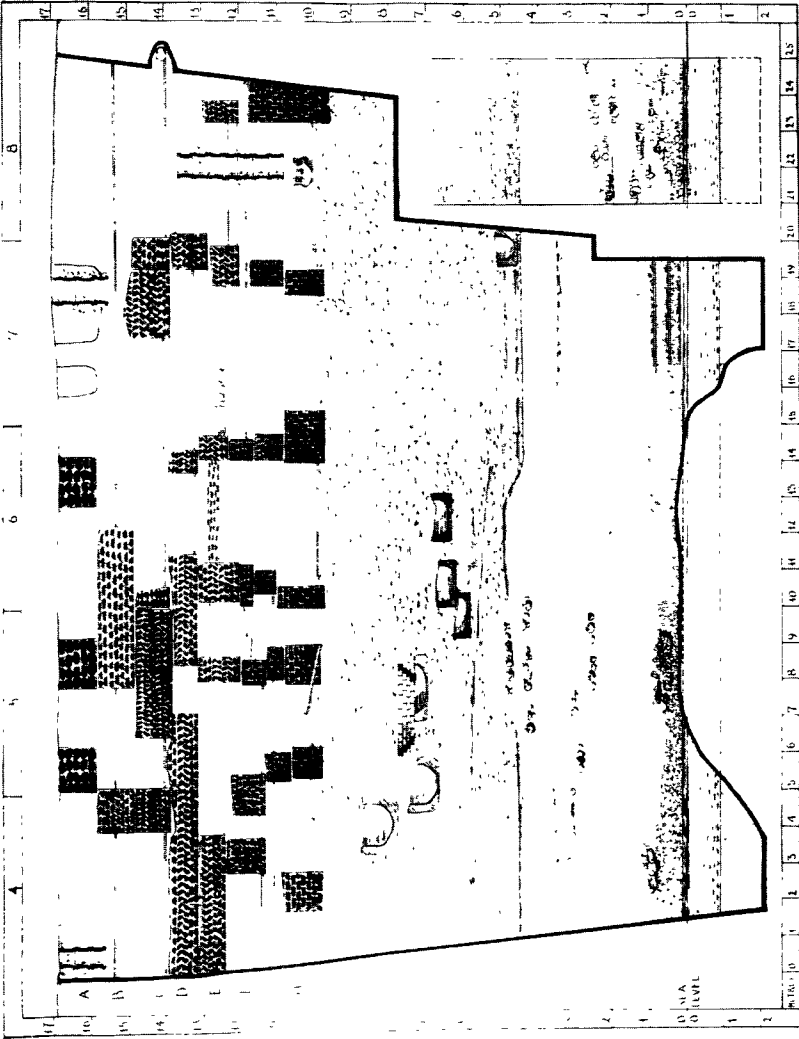


FIGURE 16. - Section of Pre-Flood Pit.



FIGURE 17.—Herring-Bone Walls.

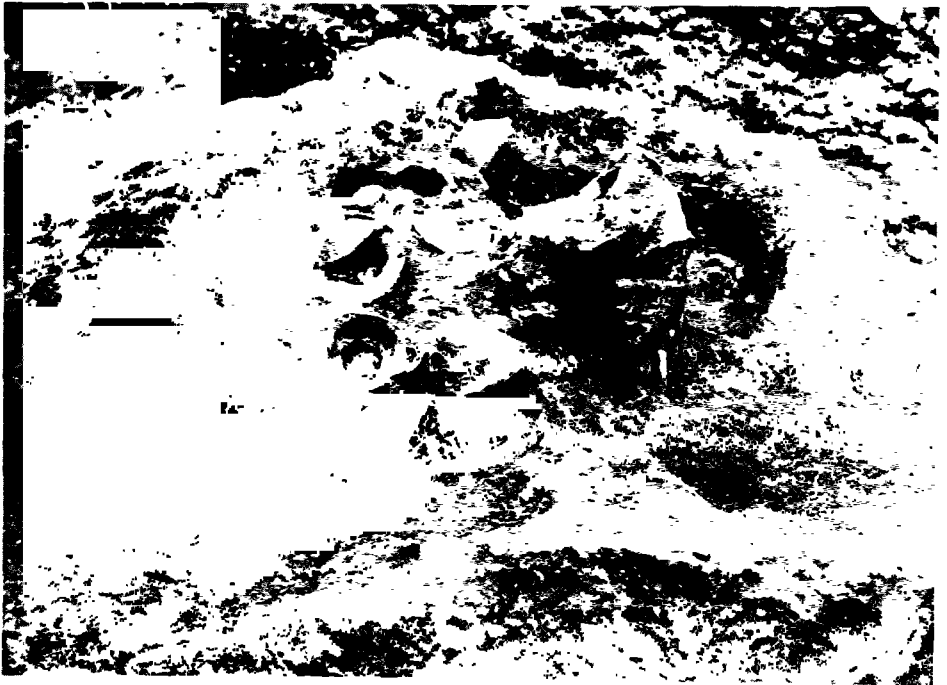
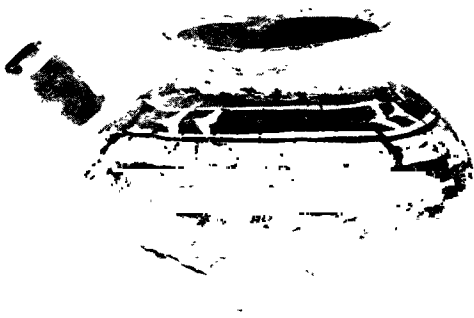
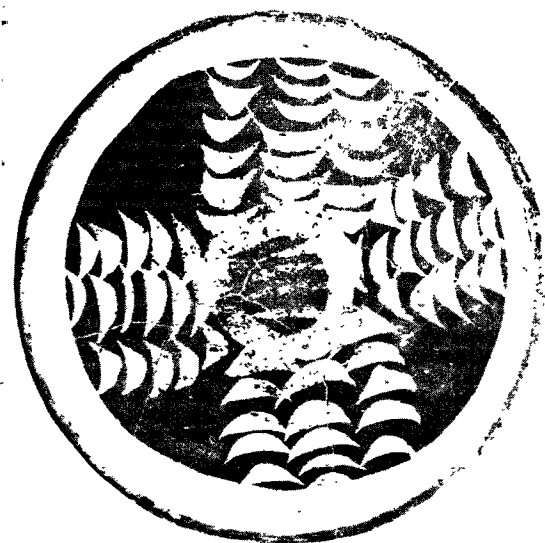
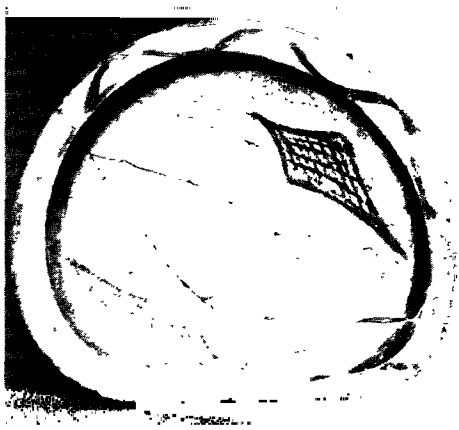
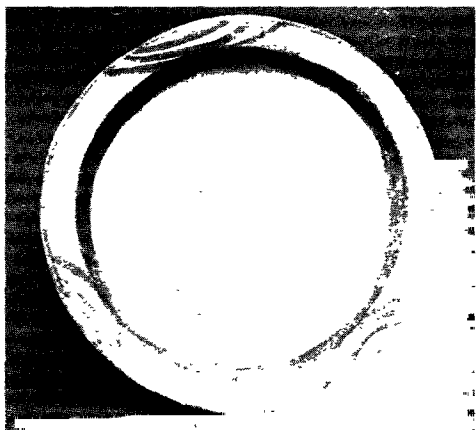
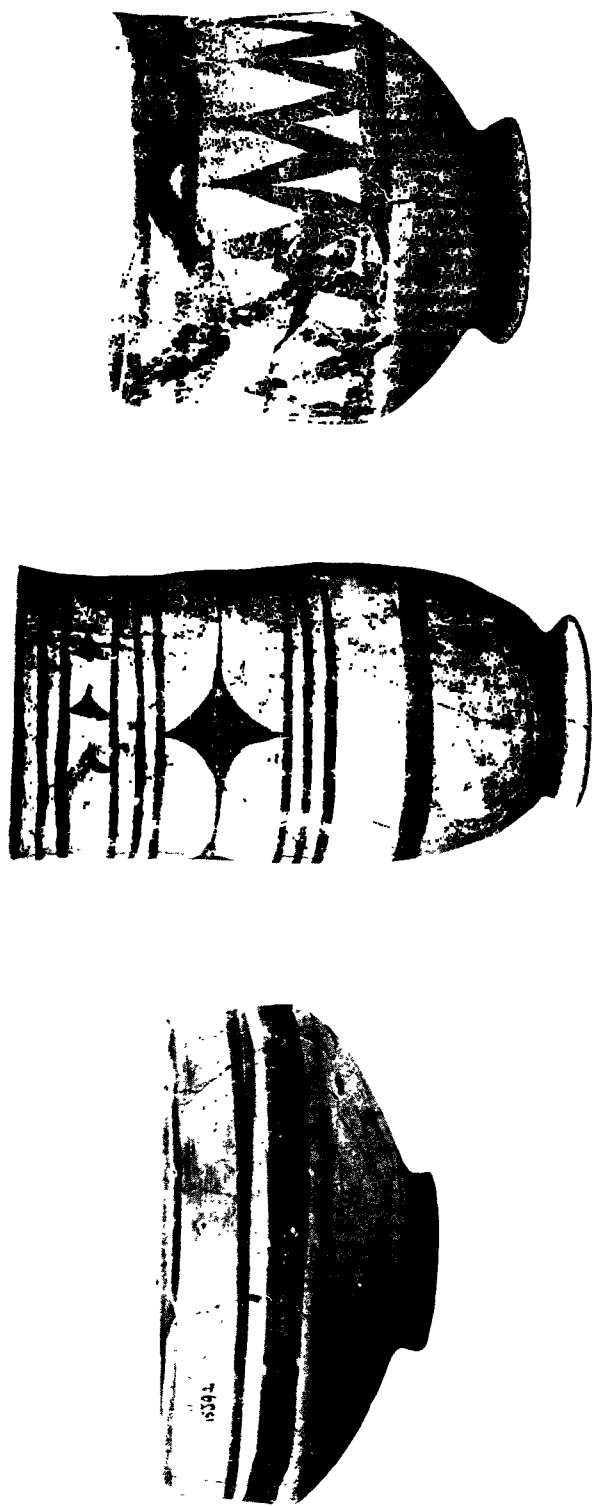


FIGURE 18.—Kiln in Pre-Flood Pit.



FIGURES 19 to 23.—Painted Pottery of the Pre-Flood Period.



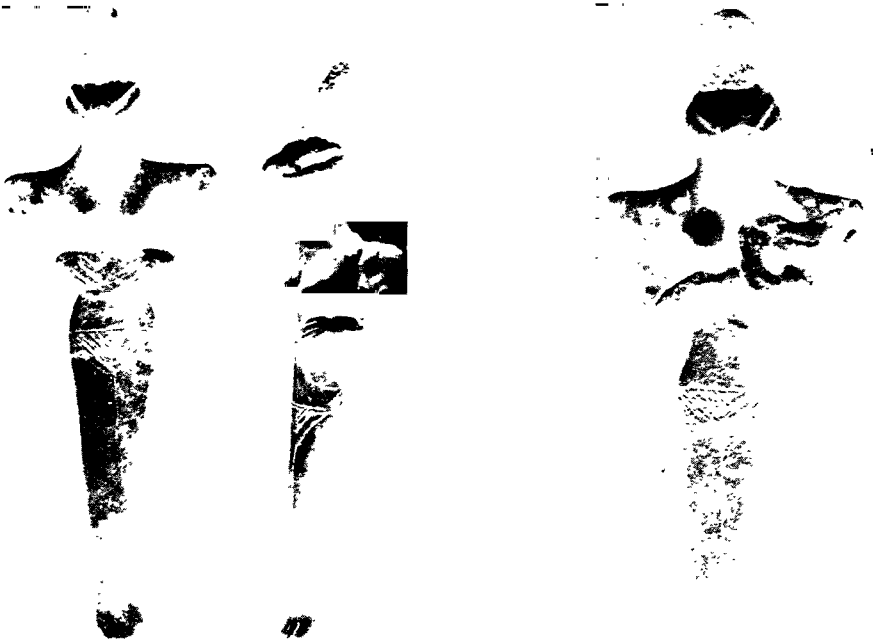
FIGURES 24 TO 26.—Clay Vessels from Graves of the Period al-'Ubaid II.



FIGURE 27.—Steatite Carving of a Wild Boar, Jemdet Nasr Period.



FIGURE 28.—Impression of Cylinder Seal from Jemdet Nasr Period.



FIGURES 29 to 32 —Clay figurines from Graves of the Period al- Ubaid II.

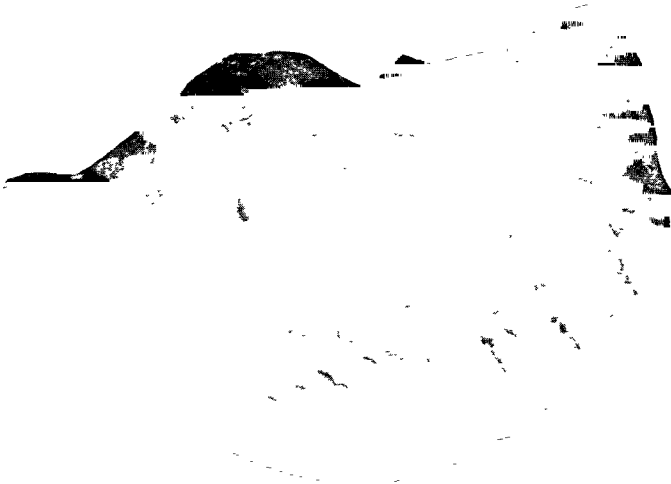


FIGURE 33.



FIGURE 34.



FIGURE 35.

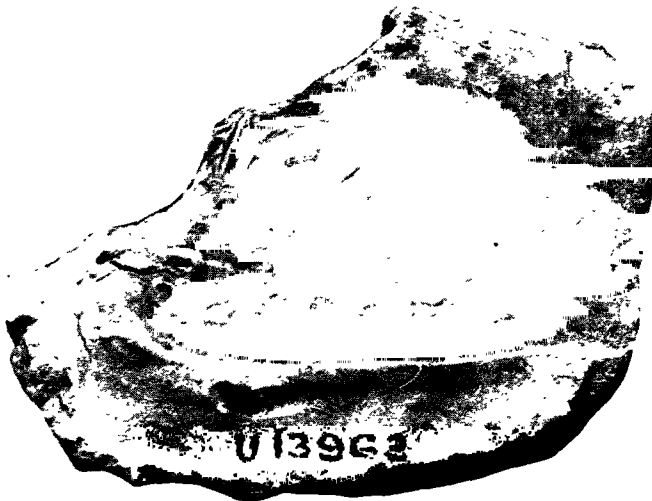


FIGURE 36.



FIGURE 37.



FIGURE 38.



FIGURE 39



FIGURE 40.



FIGURE 41.

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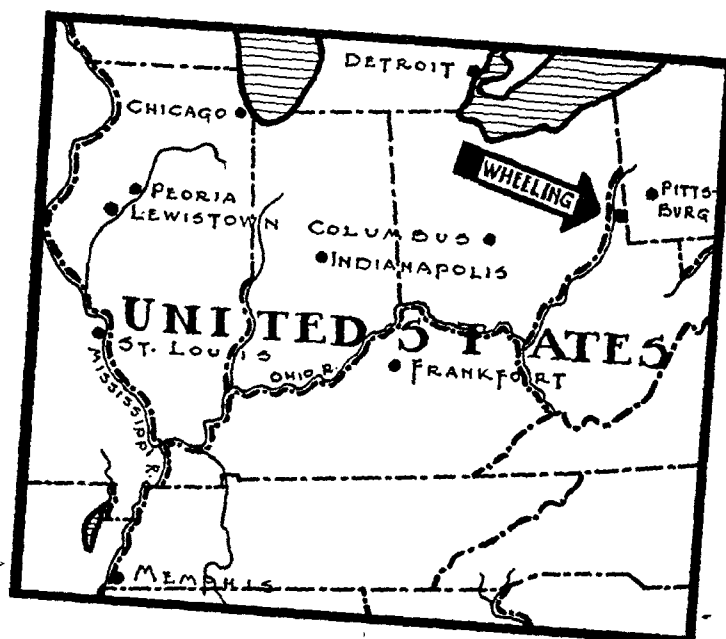
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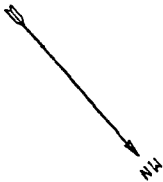
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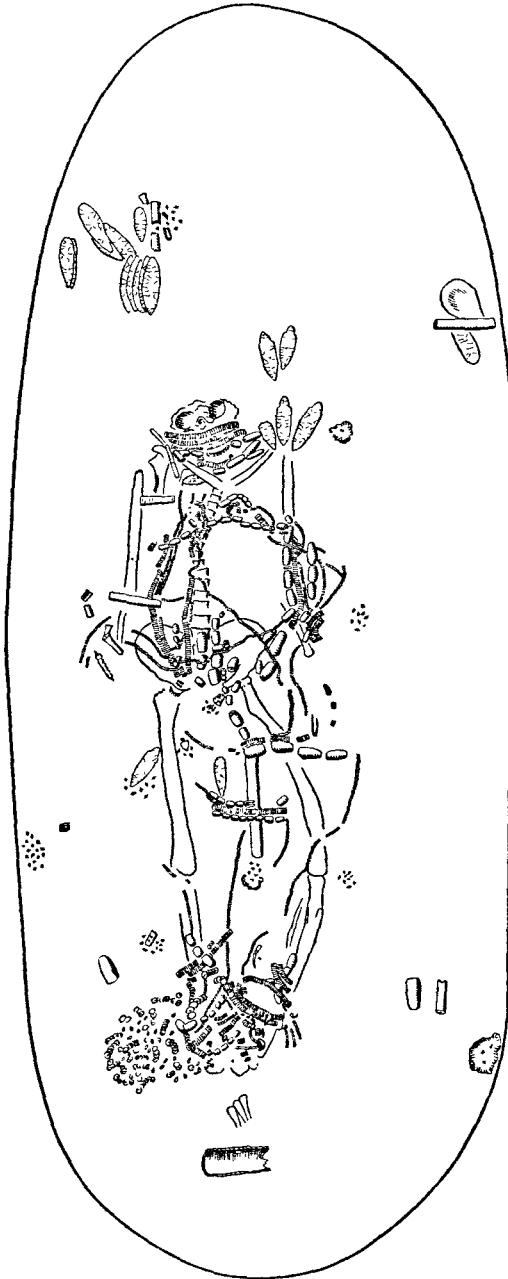


PLATE I.—BACHE AND SATTERTHWAITE: Excavation at Beech Bottom.

EXCAVATION OF AN INDIAN MOUND AT BEECH BOTTOM

BY CHARLES BACHE AND LINTON SATTERTHWAITE, JR.

THE period from July 3 to August 4, 1930, was spent in the investigation of a small mound on the Ohio River, fourteen miles north of Wheeling, at Beech Bottom. Brooke County, West Virginia. The site was brought to the attention of the Museum by Mr. Dwight H. Wagner, of Wheeling, who secured permission to excavate from the Wheeling Steel Corporation, owners of the property on which the mound is situated, and of which corporation Mr. Wagner is an officer.

The field party from the Museum consisted of Miss Mary Butler, Mrs. Linton Satterthwaite, Jr., and the writers, Mr. Bache being in charge of the work.

We take this opportunity, on behalf of ourselves and of the University Museum, to express the deepest appreciation for the many kindnesses shown and for the interested coöperation by Mr. Wagner, Mr. Charles Ewing, Mr. J. L. Grimes, Mr. Joseph Cowdan, Jr., all of Wheeling, and to Mr. James Wallace, of Beech Bottom. To Miss Sallie Wagner, an enthusiastic amateur archaeologist, we are particularly grateful for her energetic work on the mound with us. The Wheeling Steel Corporation, besides permitting us to open the mound, generously contributed whatever labour we desired and furnished guards, and for this we cannot express our thanks sufficiently.

We are also very grateful to Dr. H. A. Pilsbry, of the Academy of Natural Sciences, Philadelphia, for his identification of shell specimens; to Dr. A. K. Graham, of the University of Pennsylvania, for chemical analyses; to Dr. Herbert G. Kribs, of the same institution, for zoölogical identifications; to Drs. Frederick Ehrenfeldt, Frederick M. Oldach and Paul J. Storm, also of the University of Pennsylvania, for mineralogical identifications; and to Mr. Henry V. Shetrone, Director of the Ohio State Museum, for advice and assistance, and for placing the splendid collections of the Ohio State Archaeological and Historical Society freely at our disposal.

The Beech Bottom Mound stands on the level floor of the Ohio River Valley, fifty yards from the banks of the river, and about a quarter mile from the nearest hills to the east, rising out of the valley towards Pennsylvania. The banks of the river are here thickly overgrown with trees and brush, and the valley floor itself has but little vegetation beyond sparse grasses and the usual farm crops. The floor on which the mound stands is about twenty-five feet above the level of the river, which here flows between steep banks.

The mound is isolated, although about a quarter of a mile to the north-east, on a shoulder of the valley-side, there is a low circular mound about twenty-five feet in diameter and perhaps five feet high. It is nicely hemispherical, but has doubtless been made so by the present or former owners of the house on the lawn of which it stands. So far as we were able to ascertain, it has never been opened. We were informed that in former times there was another mound across the river, slightly downstream from the Beech Bottom mound, but that it has been cultivated and largely obliterated. We did not have time to investigate this report.

The Beech Bottom Mound, speaking broadly, is a cone, with average diameter of twenty-two metres at the base, and greatest height from the general ground level about it of four metres [Plates II and XII]. The top has been considerably disturbed by "pot-hunting," which gives the effect of a truncated cone. One side, the south, has also been dug into in modern times and the regular contours of the mound are here destroyed.

At one time, there was a number of large trees growing out of the mound, which have been cut down, leaving their stumps on the top and on the sides close to the top. One small tree was alive when the excavation commenced. Other overgrowth was profuse, with an enormous amount of poison ivy.

Erosion was appreciable, the wash down the steep sides of the mound having left a sort of collar around the base, especially noticeable on the west and north slopes, about two metres across and falling, in this distance, about half a metre from the side of the mound to the ground level.

* * *

The first cut was made on the morning of July third. Arbitrarily, before we commenced digging, we selected a point well outside the mound area, on the general ground level, and established it as our 0.00. It is with reference to this point that all elevations will be given in this report. Unless stated as in centimetres or millimetres, all elevations and distances are given in metres or decimal fractions thereof.

About seven metres from the base of the mound, on the west side, a shallow trench 0.75 metre deep and 1.00 metre wide was dug, running on this level into the side of the mound. As it penetrated the side of the mound, it was stepped up about 0.75 metre and again run into the side of the mound, where the operation was repeated until the top of the mound was reached at the seventh step [Plate XIII and Plate III, Figure 1, A].

At the top of the mound the trench was widened at the west end of the seventh step [Plate III, Figure 1, B] and the work in levels was commenced. A layer of about twenty centimetres was removed with the shovel, slicing downward in thin peels, the dirt being watched by members of the party. Inasmuch as at this time we did not know whether the entire mound was to

be investigated or whether a small portion would be completely done, or whether the work would be abandoned after our preliminary trench, we chose this portion to concentrate upon. It was close to the centre of the mound, but did not actually embrace the centre, and we calculated that from this area we would learn the general structure of the mound before excavating the centre.

It soon developed that we were in a rich area, for at elevation 2.69 we came upon the pieces of a complete gray pipe-stone tube in direct association with red ochre [Plate XVI, 2]. Somewhat later, at elevations but a trifle lower, were found two stemmed points [Plate XIX, 13 and 16], an unbroken pipe-stone tube [Plate XVI, 9] and a gorget of grey banded slate, all edges concave [Plate XXIII, 2]. As all these objects, besides several others of less significant nature, came from a small restricted area near the eastern end of our pit, and therefore nearest the centre of the mound, we decided that a larger area should be opened, but that we would not yet attempt to dig out the centre of the mound. It seemed to us that it was of importance to learn as much as we could of the construction before we attempted to go to the heart of the tumulus.

Therefore we extended the scope of the cut so that a pie-shaped sector, here referred to as "main sector," comprising over a quarter of the mound should be removed [Plate III, Figure 2, C, and Plates XII and XIII]. Using the south wall of our trench for one side and the continuation of the east wall of the pit for the other, we went once more to the top of the mound and resumed our work in levels. All work in the first pit was stopped until the larger area should reach the same level, when the two could be taken down simultaneously as a unit.

The excavation of this larger sector was carried out in the same fashion as the previous smaller pit: in thin levels, in order that the position of objects might be recorded and changes in soil, if any, noted. The two sides of the excavation remained as vertical sections [Plates IV and V].

The same conditions were noted throughout the digging of the main sector: objects were concentrated in a restricted area near the centre of the mound, and were encountered without let as we went deeper. Because of this, and feeling that we were by this time sufficiently familiar with the mound material, we determined to take down the centre itself. The entire top of the mound was removed to a depth of about a half metre from the general top level (that is to level 3.40), and this area observed for intrusions [Plate III, Figure 3, D]. None were observed except pot-hunters' pits (indicated in section on Plate V).

At this level (3.40) the central area [Plate III, Fig. 3, E] was staked out and digging started. Objects occurred in comparative scarcity, due partially, perhaps, at the higher levels, to the previous digging. This scarcity

threw the concentration of objects about two metres northwest of the topographic centre of the mound, in the main sector already excavated.

While work on the central area was going on, the downward progress of the main sector continued. When it had reached level 0.30 there appeared a ridge of yellow sand, the top of which ran under the walls of our main sector. Since its apparently oval shape, convex in section, gave us the impression that it had been thrown out of a pit of some sort, the remainder of which was probably included within the central area, we called a halt in the main sector until the central area should reach the same depth, so that the ridge could be investigated as a unit.

When this had occurred, the entire area under excavation was cleared to the level of the surrounding ground (our 0.00) or, where the sand occurred, to its level, which was, along the top of the ridge, about thirty centimetres above zero. The surface of the sand, yellow but brighter and coarser than any encountered above, was followed with knives, trowels and brushes. It was soon evident that our assumption of a dug pit was the correct one, the pit proving to be somewhat eccentric and probably the only burial of the mound.

There remained only to clear the grave, which was done by following with small tools a clear cleavage between the yellow sand walls and a dark earth filler. Excavation of the grave was in horizontal levels, as everywhere else.

Objects were encountered in considerable numbers on the sand thrown from the grave, and also in the dark earth which filled it, from the top to the bottom. In both cases the concentration was marked, in contrast with higher levels of the mound, and we noticed a new feature in the large number of broken tubes and fragments, together with a few broken blades and fragments; furthermore, on the sand surrounding the grave, these were nearly all on the side southeast of the latter, and near it; while in the grave, until we reached the bottom, there was a decided predominance of them on that side.

The skeleton proved to be richly decorated with shell and copper beads. Here was found the only worked shell and the only copper of the excavation. An attempt was made to clean off all beads and determine their arrangement, a very time-consuming operation. The skeleton was uncovered and removed in sections so that no single photograph of all the remains in place was possible. As the work proceeded the principal bones were located on a scale drawing; sketches showing the positions of associated objects were made and photographs of the uncovered sections taken before removal. We expected to have a complete composite photograph of the skeleton made from our sectional photographs, but were disappointed by the lack of any picture of the region between the elbows and pelvis [see Plate XIV]. The drawing [Plate I] is made

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from our field drawings carefully checked by photographs (except for the region noted) supplemented by notes locating certain of the specimens with reference to fixed points. The drawing is considered to be accurate within a few centimetres.

The skeleton was in rather poor condition, and much crushed. The cranium had completely disintegrated, but the jaws and facial bones were in fair condition and have been restored. Plate XV shows what there was of the head, with parts of the beads which ran across the face, after cleaning but before the beads shown were moved. With one fragmentary exception, all hand bones were gone and the same applied to most of the foot bones. The skeleton and parts of the bark-covered floor were covered with yellow sand, similar to that forming the walls of the grave, to a depth of a few centimetres. A list of bones recovered appears later under "Skeletal Material."

FLOOR OF THE MOUND

Due to the absence of a distinguishable humus beneath the mound or in the soil outside it, and the similarity of the mound material and underlying strata (except toward the centre), we were unable definitely to determine any floor level. There was no prepared floor. We can say that the bottom of the mound was very close to what is today the general level of the surrounding land. This was indicated by the fact that the bottom of the sand thrown from the graves lies on that level (our 0.00) and, where it does not lie on dark earth, could not be distinguished from the underlying undisturbed soil.

The sand lay in part on dark earth which was artificially deposited prior to the digging of the grave [Plates IV, V and VI]. The bottom of this layer of dark earth (which extends beyond the limits of the sand) fades out gradually into naturally deposited yellow sand, indistinguishable from that thrown from the grave. The dark colour can be distinguished ten to twenty centimetres below our zero level, which may indicate excavation of a slight depression about ten metres in diameter, surrounding the grave as a centre. However, a natural depression, such as occurs outside the mound, would as well account for the observed facts.

MOUND MATERIAL

Three principal sorts of soil were used in the erection of the mound: (1) a light yellow sandy soil with mottled discoloration, containing little vegetable matter, identifiable, except for the mottling, with the superficial layers of the surrounding flood plain; (2) a very dark brown, sometimes almost black, sandy loam, usually soft, which can presumably have been obtained only either from the river bed or from a marsh distant about a half mile from the site; and (3) various mixtures, perhaps intentional, of the two [Plates V and VI]. Flint chips and broken flint or flinty pebbles, together

with small isolated bits of charcoal, occurred throughout all three types of material. They also occur in the surrounding surface soil. A fourth type, referred to as "yellow sand" or simply as "sand," was thrown out from the sub-strata of the flood plain when the grave was dug.

MOUND CONSTRUCTION

The mode of construction of the mound will be further considered under the head of "Conclusions." Reference to Plates IV, V and VI will give a clearer picture than a detailed description in words. The latter plate is of course a reconstruction, showing parts of the reverse sides of the elevations of Plates IV and V, with positions of certain of the objects added. It is to scale and is accurate, except that the southerly elevation is shown at right angles to the northerly (the angle is actually about 114 degrees); and the easterly 1.05 metres of that elevation do not appear on our field drawings and are here added to connect the two elevations. Symbolism as to soils, charcoal and the like is identical on this plate with that for Plates IV and V.

It will be noted that a layer of dark soil underlay part of the sand thrown out from the grave, filled the grave, covered the sand and extended beyond it (within vertical limits above and below it) a considerable distance, rose immediately above the grave a slight distance, and then expanded in every direction as the height rose, forming an inverted cone, the flat top of which is somewhere in the neighborhood of eight metres in diameter, and which at this level (about 2.00) gradually fades out into yellow soil above. To the north, the outer and upper edge of the cone was not carried to its logical completion, nor was it later disturbed. There was here no indication of such disturbance in the yellow soil.

In the centre of the cone, roughly between levels 1.00 and 1.50, was an irregularly shaped mass of yellow soil. This lay in part beneath recently dug pits. From its shape, the fact that it lay partly under a broad expanse of unbroken bark [Plate V], contained a complete tube and the celt shown in Plate XXII, 9, and did not contain charcoal and alternating layers of clay and sand, which were characteristic of the intrusive pits, perhaps the conclusion may be drawn that this yellow mass was intentionally placed in the midst of the dark cone by the builders.

Between the sand from the grave, with its dark covering, and the under-sides of the cone (and not elsewhere) the soil was a characteristic mixture of dark and yellow, giving a pebbled effect, interspersed with plainly broad but shallow patches of pure dark, or similar patches of mixed dark and yellow soil. These deposits, perfectly clear, rose from the centre toward the periphery on an angle roughly parallel with the under side of the cone. We have been unable to account for this as merely incidental to the mound construction.

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OBJECTS

With a few minor exceptions, noted, all objects recovered are shown in the photographs, Plates XVI to XXV. The scale appearing in most of these, and in some of the drawings, indicates centimetres.

Of all specimens recovered which we believe were intentionally placed by the builders, every one was found either in the grave; upon and in direct contact with the sand thrown from the grave, with the dark earth covering them; in the dark-earth cone; or, in a number of cases, above the cone in dark and yellow mixed soil. Exceptions to the above are two blades, exact position unknown, but probably from the cone; the largest blade found [Plate XXIII, 4] and a celt [Plate XXII, 5] in yellow soil probably disturbed by intrusive digging, perfectly plain on either side; five broken tube fragments; three belonging to one tube [Plate XVI, 3], which were found well above the cone in yellow soil in the disturbed region; and the tube and celt in the central yellow mass, itself surrounded and partly covered by dark soil. Practically all specimens, therefore, were either in or covered by, or at least associated with dark soil. Those considered to have been accidentally included in the mound material are considered later. They were comparatively few in number and differed in type from the above.

It will be noted that the dark portions of the mound are roughly circular in outline when considered in plan, and that they centre about the grave, the centre of which is about two metres northwest of the topographic centre of the mound. The greatest concentration of objects is likewise in and above the grave. The plan shown as Plate I shows the horizontal distribution of all objects except the large number within the earth, filling the grave and upon the skeleton and the grave floor.¹ The comparative scarcity of objects to the east of the grave is perhaps due to intrusive digging which here covered a considerable area and reached down, for the most part, to the 1.60 level.

FLINT

The majority of objects were of flint or flinty material. One hundred and sixteen objects of this substance were recovered, of which seventy are thin blades, stemmed or leaf-shaped for the most part, and averaging about ten centimetres in length. All but one, a broad blade, stem broken, seven centimetres point to shoulder, and a small poorly worked stem with shoulders, point missing, are shown in Plates XVIII to XXIII with the one large blade (twenty-two and a half centimetres in length) on Plate XXIII, 4. The remaining thirty-nine, all but three shown on Plate XXI in rows numbered 6, 7, 9, 10, 11, are small points and scrapers and are believed to have been accidentally introduced with the soil in constructing the mound.

¹ For vertical distributions of all characteristic objects, see Plate XI.

Of the seventy characteristic blades, forty-eight were found in thirteen groups, ranging from two to eleven in a group [Plates XII and XIII]. Many of these were smeared with red ochre, others were with red ochre in close proximity, and a few showed no close association with this substance. Six other blades were found smeared with red ochre but were more or less isolated except that one of them was a few centimetres from the smaller of the two hæmatite celts encountered. A seventh isolated blade was in close association with red ochre, but not smeared with it. The remaining twenty blades occurred singly with no certain association, but all in the dark earth areas. We have classified as in "groups" only blades in actual contact or separated by two or three centimetres of soil. All blades were uncovered in position except two which were discovered in loose earth thrown out by the shovel. Four we believe were intentionally broken.

To the above should be added three broken blade points, small portions but apparently of the same types as the above, and three broken scrapers, of the type shown in Plate XXI, none of which are figured.

The red ochre was applied to several blades on one or more diagonal bands across the blade. In the other cases the smear has no form. It is sometimes on one side only, in others on both.

TUBES

While the occurrence of these objects was by no means as frequent as was that of the blades, it was as persistent from the top of the cone to the floor of the grave. Their sizes and character are we believe sufficiently indicated by the sectional drawings and photographs [Plates VIII, IX, X, XVI and XVII]. The end which is solid, except for a small hole connecting with the principal and larger bore which runs thence to the open "end," is here called the "base," for want of a better term.

Thirty-two tubes are represented, counting one for every base recovered. Of these, seven are complete, of which two are unbroken in any respect. Two more are practically complete and of ten we have a complete transverse and longitudinal section. These are all shown on Plate XVI, 1 to 9, and on Plate XVII, 1. In addition to these, twelve bases, four middle sections and three open ends were found [Plates XVI and XVII]. Two of the middle sections fit two of the bases, and the other two fit two of the three open ends. In addition fifty-one small sherds were recovered, which have not entered into restorations. Sectional and end drawings of all tubes and pieces are shown in Plates VIII and IX and Plate X, 1 to 7. Figures 8 to 13 of the latter are of Ohio specimens shown for comparison. Lengths range from 10.8 centimetres to 31 centimetres, maximum diameters from 2.3 to 3.8 centimetres.

With one exception, all tubes are of grey pipe-stone, of varying shades of grey, some with an inconspicuous speckling of white. The material is known in Ohio as Ohio pipe-stone.

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One of the bases [Plate VIII, 7, and Plate XVII, 7] differs from all the others as to material. It is soft grey clay. There is no tempering nor evidence of baking, and from the inside appearance appears to have been drilled like the others. In form it is identical with them. It has hardened appreciably on drying and we are inclined to believe that it was made in exactly the same manner as the others of an inferior clay-stone, which has softened to clay in the damp ground. This piece came from the grave floor, just below the pelvis, and was associated with graphite.

No red ochre was found on any tube or fragment, but one of the longer tubes [Plate XVI, 4], which lay between the legs of the skeleton, was partially coated, especially on the under side, with yellow ochre. Several found on the sand from the grave, and on the grave floor, showed an orange discoloration on one side, almost certainly due to contact with bark, which was much in evidence there.

All of the breaks, which are fairly clear on the photographs, except one on the base shown in Plate XVII, 5, occurred before excavation. The two unbroken tubes [Plate XVI, 1 and 9] occurred in the dark earth cone at levels 1.56 and 1.99 respectively. A third [Plate XVI, 2] occurred in the cone at level 2.69, the two pieces being in line, inclined at the same angle and about one centimetre apart, and may have been broken accidentally after being placed in position. A fourth and fifth [Plate XVI, 4 and 8] lay on the floor of the grave, each in two pieces, but the pieces in perfect contact. These must have been broken by the weight of the dirt or else the ends were carefully fitted together after breakage. The remaining four tubes, more or less complete [Plate XVI, 5 to 7, and Plate XVII, 1] were restored from sections and sherds found at various levels and distances apart, to be more fully discussed under "Conclusions." Nearly all of the sections and sherds, both those entering and not entering into restorations, occurred on the yellow sand from the grave or in and on the floor of the grave itself. The sherds not forming parts of restorations are not shown on the plates. They are all small, only six of the fifty-one being over five centimetres in length, none showing more than half of a cross-section.

CELTS

Ten celts were recovered, nine being shown in Plate XXII, and three lay on the floor of the grave, close to the skeleton [Plate I]. Figure 2 was found above the dark-earth cone at the 3.50 level in the disturbed region. Figure 4 was recovered in moving already disturbed earth, but probably came from the cone at a level between 1.20 and 1.00. It is distinguished by half its surface on one side being perfectly flat and highly polished. Figure 5 came from the dark-earth cone, level 2.10. Figure 6 lay on the sand thrown from the grave, with the base of a broken tube. Figure 7 is of hæmatite and

was found in the dark-earth cone at level 1.26, together with a stemmed blade. Figure 8, a larger and beautifully worked hæmatite specimen, was found in the grave, about thirty-five centimetres above the skeleton. Figure 9, from the yellow mass in the cone, differs from all the rest, being thin, with rounded edge, and the material being a poor quality of slate, flat on the under-side with a ridge down the centre of the side shown. It is well worked only at the cutting end. On the under-side of the other end are remnants of a smoothed surface, as if the tool had been sharpened at either end, and this end later broken. Unlike any other celt, it was smeared with red ochre. A tenth celt, entirely similar to Figure 5, is not figured. It was found in loose earth with no data on its location or level.

SLATE

The material commonly called Ohio Banded Slate is represented by two exceedingly graceful problematical forms, interesting but by no means unusual. The pendant and gorget [Plate XXIII, 1 and 2 respectively] were found in the cone at levels 2.24 and 2.32 respectively.

A thick piece of poor quality slate [Plate XXIV, 1] such as commonly occurs above the coal deposits in this region, seems to have been worked along two edges and may be part of a digging tool. This was found isolated and well outside any dark-earth area at level 0.70.

BONE

This substance, as material for tools or otherwise, was scarce. Three objects were all found with the skeleton. Figure 5 on Plate XXIII lay across the right scapula. The ends are semi-cylindrical [Figure A, 2], one showing possible traces of black pigment, the other possible traces of red, doubtful in each case. Plate XXIII, 3, and Figure A, 1, has a tapering hole at one end, the face of the end showing very plainly the green stain of copper about the hole and extending to the edge. This end rested against the inside of the right humerus and there was no trace of a copper tool for which it may have been a handle. Plate XXIII, 7, is the broken end of a knife or blade-like implement, which came from the region of the ankles. The exact location was not noted and it is therefore not shown in the drawing of the skeleton.

OCHRE

Red Ochre occurred at nearly all levels where the dark earth appeared, and nowhere else. Its vertical distribution both as separate deposits and on blades is indicated in Plate XI. No attempt to locate all deposits was made. Four especially large lumps were noted, one above the cone, at level 2.75, another close to a broken tube both in mixed soil really a part of the cone; an egg-shaped lump in the cone at level 1.48 (longest diameter sixteen centi-

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metres); and a smaller lump resting on one of a group of blades about twenty-five centimetres distant from the last, at level 1.40 [Plate XII]. The relative positions of the first, third and fourth of these are shown in Plate VI.

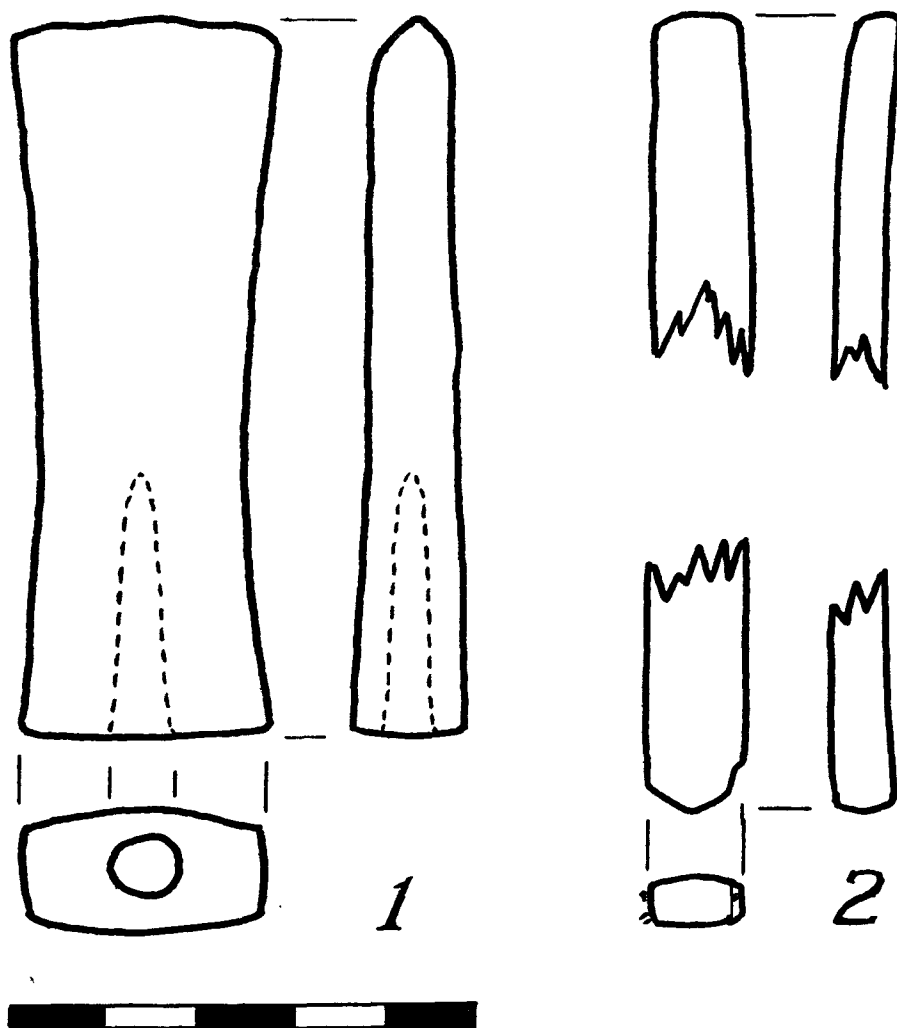


FIGURE A

Red Ochre occurred only on, close to, or in the general neighborhood of blades, tubes or celts. There were many minute traces of it, as if a lump had been accidentally or purposefully crumbled and scattered about.

While such small traces occurred on the sand from the grave, and in the grave itself, no sizable lumps appeared below the dark-earth cone. On the

other hand, three lumps of yellow ochre were placed with the skeleton, and one, perhaps two, occurred some distance above the grave, the locations of which were, unfortunately, not noted.

Red Ochre occurred on no tubes, though often in close association with them. The yellow substance occurred on one tube, but apparently was not smeared on it, as was quite evident in the case of the red on several of the blades.

Although their proper place is under the classification "Miscellaneous Stone," it is interesting to note here that there were found two small, naturally formed mortars [Plate XXIV, 4 and 5], which were probably employed in preparing the ochre for use. The smallest of these was almost certainly so used, as traces of the ochre were evident on the bottom of the bowl, and also on the small round pebble [Plate XXIV, 6] which was found in the mortar.

MISCELLANEOUS STONE OBJECTS

The bird-stone in Plate XXIV, 3, was not taken from the mound. This was reported as having been found in a field about two hundred yards north of the mound and is figured because of the rarity of bird-stones from West Virginia. The grooved axe fragment [Plate XXIV, 2] was discovered in loose earth which had been removed many yards from the mound with team and scraper. Figures 1, 4, 5, and 6 of this plate have been already discussed. Figures 7, 8, and 11 are probably naturally shaped stone, but, because of their positions and associations in the dark-earth cone, we believe they were intentionally placed there. Figures 12 and 13, natural cup-like geodes, were found in the cone rather close to (within 1.50 metres) and only slightly lower than four blades. That shown in Figure 13 was smeared with ochre.

Figures 9 and 10 were found on the floor of the grave to the left of the skull, with a tube [Plate XVI, 8] lying across them. Figure 10 is probably a sharpener for bone or other implements. Figure 9 is of fine-grained argillaceous sandstone. Both the larger surfaces are concave, showing irregular striations, especially near the edges. Striations occur all over the rounded end, in various directions, and near one edge of the wedge-shaped sides, which are otherwise smooth.

BEADS

Copper, the only metal discovered, was found only as beads decorating the skeleton. All are cylindrical, manufactured by rolling strips of thin copper of the desired size. No great variety of form existed. Nearly all show a distinct bulge at the centre, varied in size from three and a half millimetres diameter by three millimetres length to eight and a half millimetres diameter by nine millimetres length. They were found in chains, each bead

in direct contact with the next. Exceptions to the above are four beads properly described as tubular, with no bulge, and larger, varying from nine millimetres diameter by sixteen millimetres length to ten millimetres diameter by twenty-four millimetres length. Each is of a different size, the next to the longest having the greatest diameter, twelve millimetres. Three of these larger specimens were found below the left wrist, separated from each other as shown in the drawing [Plate I], but they are too small to have been finger rings.

Shell beads in large numbers decorated the skeleton, and did not occur elsewhere. Many disintegrated when brushed, others were easily preserved. No attempt to count them was made, but their number certainly ran well into the hundreds. The photographs [Plates XIV and XV] and the drawing [Plate I] show the arrangement as far as it was recorded. The drawing shows only those parts of chains actually drawn in position or photographed.

Based on identification of a fair number of samples of all types, all shell beads were of warm-water marine shells, probably from the eastern rather than the western region of the gulf coast. The large tubular beads are from the columella of *Fulgar perversum* (also called *Cusycon perversum*) and the discoidal ones from *Venus*, probably *Mortoni*; the small shells, unworked except for an occasional perforation, being *Olivella mutica* and *Marginella apicina*.

Specimens of all types and sizes of beads found appear in Plate XXV. The long string of discoidal beads was of course assembled by us to show the range in size. On the skeleton these were well matched: see the photograph of the skull with many beads still in place [Plate XV] and the few short sections of strands removed intact [Plate XXV]. Tubular beads were for the most part fairly well matched as to diameter, with considerable latitude as to length. All beads, except the *marginella* and *olivella* shells and the four tubular copper ones, were found in strings.

Small remnants of the cord [Plate XXV] were preserved by the copper at two points. Near the ankle, the cord had been wrapped many times around a copper strand. The fibres suggest hair or sinew rather than vegetable fibre. They are thread-like and regular in diameter and are twisted in strands of two, three or four fibres. The largest cord (two millimetres in diameter) is formed of three such strands twisted about each other.

Two halves of a tiny rodent's jaw, a beaver tooth and an eagle claw were found below the knee near strings of beads. The eagle claw is figured on Plate XXV. It would seem probable that all were attached to the beads, though they were not perforated.

GRAPHITE

Graphite was found as raw material, in small grains or pebbles, the largest diameter varying between five and ten millimetres. They were for the most part flat and thin, with rounded edges. This material occurred only

in eight distinct patches above the skeleton on the grave floor [Plate I]; in one patch with a broken tube section a few centimetres above the ribs; and in two patches close together on the inside slope of the sand thrown out in excavating the grave, slightly above our zero level, at the southwesterly or head end of the grave.

BARK AND SIMILAR MATERIAL

A large portion of the yellow sand thrown from the grave was coated with a hard brownish black substance, perhaps the result of percolation through the superincumbent dark soil. To the north of the grave, on the outside slope of the sand, impressions of leaves and twigs were much in evidence, some very clear. One perfect mould of the maple leaf was noticed. These did not occur elsewhere, but undoubtedly ran under the unexcavated portion of the mound at this point.

On the floor of the grave we encountered badly decayed thick bark nearly everywhere, and this extended up the sides of the grave twenty centimetres or so, at least. It was also observed in occasional patches on the sand near the edge of the grave. Wherever on the sand or the sides of the grave we did not find bark, we found the coating above referred to, and the latter may be the last vestiges of the former. A half-cylinder of bark rested on the floor of the grave below the feet [Plate I].

In the cone just above the yellow soil at its center, and under the more northerly intrusive pit was a large piece of bark, bent up at the sides and sloping downward toward the southwest [Plate V]. Lower in the cone, especially at levels 1.40 to 1.50, were many fragmentary traces of bark, in close association with red ochre and two groups of five blades each. This level and region is shown on Plate VI, but without an attempt to indicate the bark.

FIRE

In the grave, about 90 centimetres above the middle of the skeleton (level -0.50) we encountered irregularly shaped masses of black earth, containing charcoal in small bits but no ash, nor anything else. There was a similar deposit in the dark earth cone above the north end of the grave, extending ten centimetres or so above and below level 0.75 (that is 2.15 metres above the skeleton). In neither instance was there the slightest indication of fires at these points, other than a little charcoal in small bits and a considerable coal-black discoloration of the soil and that not in one continuous mass.

At the southeast edge of the grave, at about level 0.00, there was a large area which had been burned a brick red, with ash, charcoal and a few broken pebbles, the whole perfectly level, about 1.00 metre in diameter, and 1.8

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centimetres in thickness at the centre, with a sprinkling of charcoal beyond the burned area, but on the same level. This had been covered with sand thrown from the grave and there can be little doubt that a fire was here maintained for some time, and that it was extinguished before the grave had been completely dug, or before it was begun.

Three metres east of the easterly side of the grave, at level 0.85, was the probable centre of a fire with quantities of broken pebbles, burned and unburned split deer-bones, charcoal and ash. This lay in the mixed soil below the bottom of the easterly side of the cone and above the black soil covering the sand from the grave. One of the black layers, or "patches," showing as streaks wherever we made a section below the cone, lay between the fire and the cone.

This fireplace lay partly within and partly without our central pit [Plate III, 3, E], and was only partly cleared. Between it and the grave, at slightly lower levels, were scattered other remnants of split deer bone, burned and unburned, and a piece of deer jaw, with several teeth.

There was much charcoal and ash in the pits dug from above near the centre of the mound [Plate V] but these were proved intrusive by finding sheet iron and a piece of green-painted shutter in the deepest. There had also been a fire near the northerly edge of our main sector, at a half metre or so above the surrounding ground level, but it contained nothing aboriginal, and could easily have been made near the base of the mound and later covered by the wash from it.

POST MOULDS

Evidences of a wooden structure were carefully looked for, and three post holes containing actual rotten wood were found about a metre in from the edge of the mound, the bottoms at levels between 1.67 and 2.34. A fourth very doubtful one was much nearer the centre of the mound. The posts were cut off clean at the bottom, were rectangular in section, and there was nothing aboriginal associated with them. We have no hesitation in assigning them to a fence erected by white men around the mound and about half way up its slope.

POTTERY

Not a sherd of pottery or of burned clay was encountered throughout our excavation, nor in a cursory examination of a nearby field made later just after it had been plowed.

MISCELLANEOUS

A human skull was found close to the edge and surface of the mound, in our initial trench [Plate III, 1, A] at elevation 1.19. We were forced to

leave it in the ground overnight and it was removed by "person or persons unknown." From its position and from the character of the earth about it we believe it to have been intrusive. Careful excavation showed that no other part of a skeleton had been placed here, the surrounding earth being undisturbed and homogeneous with the rest of the mound at this point.

Badly decayed fragments of two long-bones, presumably animal, were found well above the cone at elevation 3.50 (approximate); several fragments of the skull of a ruminant, presumably deer, occurred at level 0.70 in yellow soil near the north corner of our main sector; a piece of badly decayed bone or antler was found in the cone at level 1.45 and another at level 0.84. The first two were far removed from anything else, the latter two in the general vicinity of blades.

Four short and heavy bones, in very poor condition, were scattered in irregular fashion in the earth filling the grave, between levels -0.97 and 1.14. The only one saved has been identified as the left metacarpal of the bison or of the cow. The others were so similar in appearance that we do not hesitate to ascribe them to the same species, nor, since there were so many artifacts without a trace of European influence, do we believe there is much doubt that the bison and not the domestic cow is represented.

A poor quality slate, identical with the material of Figure 1, Plate XXIV, was found in small broken tabular pieces scattered at the lower levels outside the cone or under it. Identical pieces were picked up in the field to the south of the mound.

A small hemisphere of Barite, 3.8 centimetres in diameter, was found in the cone at level 1.32, with no direct association, but in the general vicinity of blades. It lay on its base at a slight angle.

Several small lumps of kalamite (hydrated feldspar) occurred in the cone, but levels and positions were not taken.

One tiny formless chip of black obsidian was found in loose earth which had been moved from the mound.

There were several small deposits of river-muscle shell in the dark-earth cone, the highest at levels 2.21, 2.11 and 2.09 and all roughly above the grave. They had no direct associations, but were found in object-bearing localities, and did not, we believe, occur in the mound outside the dark-earth areas. A few isolated shells appeared at lower levels in the cone. A compact mass of a considerable number lay on the yellow sand near the easterly edge of the grave, close to deposits of blades, tubes and tube fragments obviously placed there.

The occurrence of whole and broken river pebbles, usually about half the size of the fist, was consistent throughout all material excavated. In one case five broken pebbles were in close proximity to a group of two blades (in the next to the highest level shown on Plate VI); and they were closely

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associated with several other caches of blades. One such pebble rested on the beads near the left ankle of the skeleton. Otherwise their inclusion seems to have been without intent.

OBJECTS NOT INTENTIONALLY PLACED

Reference has been made to certain finds which we believe were accidentally introduced into the mound with the soil of which it is made. Most of these were found outside the dark-earth areas in yellow soil. They include the questionable digging tool, the grooved axe, broken pieces of slate, unworked bone outside the dark areas, the stolen human skull, fragments of deer cranium, the chip of obsidian, possibly some of the river-shells, and most of the river pebbles. Our belief is based on the nature of the objects, the fact that none was found in association with blades, tubes, celts or ochre so characteristic of the dark areas, nor with anything else; and in the case of the two artifacts mentioned, only one of each kind was found, and those were only fragments.

There were, however, thirty-nine small points and thumb-scrapers, the majority (but not all) of which were found in yellow soil outside or above the dark-earth areas. All but three are shown on Plate XXI, rows 6, 7, 9, 10, and 11. None of these was found in any obvious association with anything else, though two of the notched points were actually in the grave and two on the sand about it, one close to a celt. Comparison with Figure 11, Plate XXIII, showing points which were picked up in the field to the south of the mound, in a half-hour's search, suggests an adequate source for these. The first of the group there shown appears to be a broken blade of the mound type.

With the exceptions noted, not an artifact nor other object attributable to the mound-builders occurred except in the dark-earth cone, the grave itself, and on the sand thrown from it. The small points were undoubtedly known to the builders, since two occurred in the grave and two about it, close to the sand levels. They may have been made by them, but they seem not to have paid much attention to them.

ADDITIONAL SPECIMENS

After our return, the owners re-covered our excavation with excavated earth, and shaved off somewhat the rim of our central cut [Plate III, 3, E], entirely in the manner we had approved before leaving. The workmen, however, perhaps not unmoved by curiosity, went a little too deep, and removed the celt, pendant and the platform pipe shown on Plate XXIII, 8, 9 and 10. Mr. Satterthwaite did a little additional excavating, went to Wheeling and interviewed the workmen in question, and is satisfied that all

three pieces came from near the rim of this central cut, and if not from the dark-earth cone itself, at least from the mixed earth slightly above it. The celt and pendant might have been expected; the pipe is, of course, entirely different from anything we found.

In the course of checking the remarks of the workmen as to the location of and type of soil surrounding the pipe, the small blade shown in Plate XXIII, 6, was discovered near the top of but within the dark-earth cone very close to the reported position of the pipe. This was found fifty centimetres east of the rim of our cut, and about three and a half metres due east of the northerly end of the grave. It is the smallest stemmed blade recovered. None of these specimens figure in the previous discussion, as their exact locations are uncertain.

SKELETAL MATERIAL

The bones have not been studied. There seems to be no doubt, however, that the burial was of an adult male of ordinary stature. Length of femur is approximately fifty centimetres. We are indebted to Miss Dorothy Cross, of this Museum, for restorations and a superficial examination and for the following list of material recovered:

Skull:

Face and maxilla, mandible, thirty-two teeth present.

Cranium absent, except for fragments of frontal, temporal and parietal bones around face, and fragments of occipital bone.

Ribs: Fragmentary, except one complete first rib.

Scapulæ: Right scapula, acromion process and most of body missing.

Manubrium-sternum: In fair condition.

Clavicles: Right, acromial end damaged. Left, both acromial and sternal ends absent.

Vertebrae: Five lumbar, eight thoracic, three cervical.

Pelvis:

Right pelvis—Edge of ilium fragmentary; crest missing. Edge of ischium broken. Pubis missing. Sciatic notch present. Acetabulum present. Articular surface for sacrum present.

Left pelvis—Ilium fragmentary, with fragments of crest. Edge of ischium broken. Pubis present; arch incomplete. Sciatic notch present. Acetabulum present. Part of articular surface for sacrum present.

Sacrum: First sacral vertebra and part of second present.

Long Bones:

Humeri—fragmentary; distal end of one fairly complete.

Radii—one present, fragmentary; distal end missing.

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Ulnæ—one present; fragmentary, distal end missing.

Femuri—Right, complete length present with greater and lesser trochanters missing; head present. Left, complete length; head present; greater trochanter missing.

Tibiæ—Right, complete length. Left, complete length; body thicker and heavier than right tibia.

Fibulæ—body part of one fibula present, head and distal end missing.

Patellæ: right present, left missing.

Carpals and Tarsals: Eleven present.

Metacarpals and Metatarsals: Three proximal ends of metatarsals only; metacarpals missing.

CONCLUSIONS¹

BLADES

We have been able to figure practically all specimens recovered, and a detailed description would be superfluous. Stemmed and leaf shaped forms are about equal in number (thirty-seven and thirty-three), and vary somewhat in size and proportions. Plate XXI, 8, differs from these, being decidedly plano-convex, and Plate XVIII, 11 and 12, being also asymmetrical.

Few blades show any evidence of wear or secondary sharpening and the inference that they were made expressly for deposit in the mound is greatly strengthened by the circumstance that a large proportion show traces of the patinated surface of the original nodule on the tip of point or stem. One blade actually shows this at both ends, indicating that the artisan made as large a blade as his nodule would allow.

We have not attempted a study of the materials. Light blue or brownish blue flint or chert of good quality predominate. The large blade [Plate XXIII] is a beautiful white; the broken blades on Plate XXI are bluish-white, and a few specimens are dark blue. Plate XX, Figure B, 2, 3, 4, and 10, are of a poor quality lustreless and porous dark greyish material.

Representatives of each form were found in the grave on the sand and in the cone, two-thirds of them in thirteen definite groups, many in association with red ochre and some smeared with it, and we conclude that they were all ceremonially placed by the diggers of the grave and builders of the mound, and that most of them were made for the purpose.

¹ It was necessary for Mr. Bache to leave for other work before this section of the paper was completely written, and he is not personally responsible for some of the detailed statements of fact here set forth, and, at his suggestion, added after his departure. Both writers are in entire agreement as to the conclusions reached.—EDITOR.

TUBES

Photographs of the tubes, with the sectional drawings, tell their own story. They were drilled from the open end nearly to the base, and with a nearly constant bore. Circular striæ are plain in nearly all cases. Polishing to remove these inside marks is evident on a few, shown by the polish. Supplementary gouging, especially near the open end, has left occasional irregular longitudinal and transverse striations. See Plate XVI, 3 and 10, for most of these features. Some show regular striations on the outside, resulting from longitudinal rubbing [such as Plate XVI, 5 and 6]; in some cases these have been only partially obliterated by subsequent finer polishing [Plate XVII, 3]; and others have been rendered perfectly smooth and glassy [Plate XVI, 2].

In most cases the small hole through the base, if not drilled from the opposite end, has at least been reamed out from that direction, causing this hole to expand slightly as it enters the tube—a construction not particularly suited to the insertion of a stem [Plate XVI, 11, and Plates VIII, IX and X]. A few bases are slightly beveled around the small hole by secondary reaming from the base end.

All are of the same fundamental type, but four differ in external form, being nicely rounded off at each end. These are more highly polished than most of the others, both inside and out. They were all found in the cone [Plate XVI, 1 to 3; Plate XVII, 11]. The others all expand slightly in outside diameter from open end to base, the base being more or less bell-shaped.

It has been suggested by Dr. Frank G. Speck, of the University of Pennsylvania, in casting about for possible prototypes in other materials, that the bell-shaped tubes theoretically could be duplicated in essential form and size by cutting off a section of bamboo, one end below the joint, the other through the next joint, and then boring a small hole through the solid end of the cylinder thus obtained. This seems to be as good a prototype as could be suggested. Dr. Speck produced a bamboo pipe-stem, slender and with no sign of the joint remaining. At one end two slivers had been removed, giving a mouthpiece effect similar to that found on some Ohio stone tubes [Plate X, 8, 9, 11 and 12].

None of our specimens show this flattening or wedge-like bevelling at the base, with the possible exception of three, shown on Plate XVI, 7 and 8, and Plate XVII, 13. [Sections and views in Plate IX, 4, Plate VIII, 4, and Plate IX, 5, respectively]. This flattening is slight, irregular and rough and probably results from smoothing damaged tubes.

Tubes of this character (that is with semi-closed base and large, nearly constant bore thence to the open end) appear to have been found but rarely; especially specimens of such size as the larger ones, and in such numbers at

one site.¹ Various uses for them have been suggested; shaman's blowing or sucking tubes,² horns or trumpets,³ whistles,⁴ telescopic instruments,⁵ nasal inhaling devices,⁶ There has been some disinclination to regard them as smoking pipes,⁷ and they have been assigned to the problematical class by some.⁸ They were reported by Squier and Davis in 1848.⁹

Ten of our twenty-two, all occurring in the dark-earth areas from the top of the cone to the bottom of the grave, were more or less discolored by a black deposit on the inside. In two cases this was so thick that on drying, a sufficient quantity for analysis could be shaken from them. These samples were from a tube in the cone at level 1.56 to 1.63 [Plate XVI, 1] and from a base coming from the sand, a sherd of which was below in the grave at level -0.51 [Plate XVII, 8]. In these cases the appearance of the insides was entirely similar to that of a modern clay pipe after it has been smoked for some time.

The sample from the first lost 12.2 per cent volatile combustible matter and changed from black to a red clay color on ignition; that from the second lost 60.3 per cent combustible matter and also changed color on ignition. Dr. A. K. Graham, who made the tests, states that "it would be quite natural to conclude that this material could be the incrustation resulting from smoking tobacco or similar substance."

Plate XVI, 4 and 7, and Plate XVII, 7, contained respectively a clay and a charcoal pellet, illustrated in plan and elevation on Plate VIII, 1 and 7, respectively. The clay pellet was hard and reddish (71.92 per cent mixed iron and aluminum oxides) and was completely coated with a black deposit. The smaller one "burned not unlike charcoal, was undoubtedly of vegetable origin and lost 75.57 per cent volatile matter upon ignition." It was charred clear through when found.

The clay pellet came from a tube well blackened on the inside. The

¹ Moorehead, Warren K., *Stone Ornaments of the North American Indian*, page 135, Andover, 1917.

² Jones, Charles C., *Antiquities of the Southern Indians*, pages 359-365, New York, 1873; and Rau, Charles, *Archæological Collection in the United States National Museum*, Smithsonian Contributions to Knowledge, Volume 22, Article 4, page 44, Washington, 1880.

³ McGuire, Joseph D., *Pipes and Smoking Customs of the American Aborigines, Based on the Material in the U. S. National Museum*, Annual Report for 1897, page 383, American National Museum, 1899.

⁴ Moorehead, Warren K., *Stone Ornaments of the North American Indian*, page 135, Andover, 1917.

⁵ Schoolcraft, Henry F., *Observations Respecting the Grave Creek Mound*, Transaction of the American Ethnological Society, Volume 1, pages 369-420, New York, 1845.

⁶ Read, M. C., *Stone Tubes—Suggestions as to Their Possible Use*, American Antiquarian, Volume 2, Number 1, page 53, Chicago, 1879-1880.

⁷ Abbott, Charles C., *Primitive Industry*, page 330, Salem, 1881; and Moorehead, *Op. Cit.*, page 135.

⁸ Moorehead, *Op. Cit.*, page 135; and *Hand Book of the American Indian*, Part 2, page 830, Bulletin 30, Bureau of American Ethnology, Washington, 1910.

⁹ *Ancient Monuments of the Mississippi Valley*, page 224. Smithsonian Contributions to Knowledge, Volume 1, Washington, 1848.

base containing the charcoal specimen was so soft and porous that much of the original surface of the stone or clay itself had obviously weathered off, and no certain trace of burning was to be expected.

In connection with tubular pipes it has been suggested that, to prevent the unpleasant liquid mixture always accompanying pipe smoking from entering the mouth, "many tribes are said to have put a pebble or pellet of clay in the bottom of the bowl before filling it."¹ Presence of such a pebble or of a stone plug which "did not often entirely fill the aperture"² are reported for twelve stone tubes from Swanton, Vermont. These were found in graves with copper and gulf-coast shell, indicating connections with the Mississippi areas. They are not completely described, but appear to be very similar to those under discussion. The writer is informed that tubular pipes (not as yet published) have been excavated at Pueblo sites in the Southwest, with clay plugs bearing grooves in the sides for the passage of the smoke.

The inside form of our tubes at the base, more or less constant in nearly all twenty-two cases, is well suited to the reception of such clay or wood pellets as, in two instances, we discovered in the tubes themselves. If used with such pellets for inhaling or blowing smoke the pellets would obviously tend to keep the mouth clear of tobacco if not of the juice. Undoubted smoking pipes of very large size are by no means uncommon. From all of which we conclude that such a use of these specimens, ceremonial no doubt, was not improbable.³

ADDITIONAL SPECIMENS

The probable positions of the three objects uncovered after our departure, and the character of the celt and pendant, are what would have been expected from our knowledge of the excavated area. Not so the platform pipe. This is identical in type with pipes reported by Mr. H. C. Shetrone, Director of the Ohio State Museum, as characteristic of a culture which he frequently finds intrusive in Ohio Mounds. Its position, as pointed out by the workmen, was east of the centre of the mound, and in the dark soil of the cone. At this point the top of the cone was about 1.50 metres below the surface of the mound. This was in the area shown as "D" in Plate III, 3, which was excavated to level 3.40 and the surface carefully examined for intrusions.

¹ Linton, Ralph, *Use of Tobacco Among the American Indians*, Anthropology Leaflet Number 15, Field Museum of Natural History, Chicago, 1924, and Abbott, *Op. Cit.*, page 329.

² Perkins, George H., *On an Ancient Burial Ground in Swanton, Vermont*, American Association for the Advancement of Science, Proceedings, 22nd Meeting, 1873, Section B, page 86, Salem, 1874.

³ We have not attempted a study of the distribution of this type of tube. There are examples in the National Museum listed as from West Virginia, Virginia, Tennessee and Kentucky. Abbott reported tubes "much like" the Vermont specimens from southern New Jersey (*Op. Cit.*, p. 332); four tubes of apparently identical form were unearthed from graves in eastern New York, along with a grooved piece of "slaty graphite," red ochre, copper and shell beads, and leaf-shaped (double pointed) blades. (S. L. Frey, *Were They Mound Builders?* American Naturalist, Volume 13, pages 637-644, Philadelphia, 1879.)

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It seems unlikely that an excavation in the mound large enough to reach down 1.50 metres or so could have been missed at a point where we were especially looking for such a feature. We therefore feel that despite the non-characteristic nature of this pipe, it was probably placed in position by the builders. This is the more likely because the writer later found a characteristic stemmed blade [Plate XXIII, 6] near the supposed level and location of the pipe.

CHIPS

We are puzzled by the presence of fragments of flint found scattered through all parts of the mound excavated. These include most if not all of the materials of which the blades are made, and others. They are all small, including thin flakes, chunky chips, and broken water-worn pebbles or nodules. They are similar in all respects to material gathered on the surrounding surface. So far as those in the yellow soil of the mound are concerned, the inference is obvious that they were dragged in accidentally. Those in the dark earth are not so easily explained. There was never any concentration of flakes to indicate weapon manufacture on the spot.

CEREMONIAL BREAKING OF TUBES AND BLADES

It will have been noted that of twenty-two tubes represented, only five were definitely or possibly placed in position unbroken. We believe that breakage of tubes, and of four of the blades, was intentional, in part at least, for the following reasons:

1. Every tube and fragment and every blade and fragment (except two, position unknown) was found in or above the dark-earth cone, on the yellow sand, at various levels in the grave filler, or on the grave floor. This is a very restricted area, considering the mound as a whole, and contained nothing else of a refuse character.

2. Within these areas was a nearly exclusive concentration of broken pieces on the yellow sand and in the grave. Not considering parts of restorations, forty-nine out of fifty-one tube sherds, eleven out of twelve base ends, all four middle sections and all four open-end sections of tubes, together with the nine blade fragments comprised in Figures 1 to 4 on Plate XXI, lay directly upon the sand or in the grave. Those on the grave floor must have been deposited while it was open; those in the filler from time to time as the grave was filled; those on the sand at some time after the beginning of grave digging (presumably after it was completely dug) and before the layer of dark earth was placed over them and the erection of the central part of the mound began.

There is still further localization of the above; with one or two exceptions, those fragments on the sand were to the east of the grave, though the

area to the west was completely uncovered; twenty-four of these (all small pipe sherds) were in a closely packed bunch, arranged roughly in parallel rows, each of the twenty-four with its concave side up; in the grave filler there was a noticeable tendency for pipe sherds and sections to turn up on the easterly side; and there was a decided concentration (especially of sections) in the region of the right hip, from the floor up to the 0.80 level.

3. Broken tube sections and sherds occurred in very close proximity to the largest cache of blades uncovered, that above the head of the skeleton [Plate I], and definitely as part of a group of blades on the sand [Plate XIII]. Three of these blades were broken, the largest piece of each (in each case including the base) being present.

4. So far, sections and fragments of tubes entering into restorations of four complete or nearly complete tubes have not been considered [Plate XVI, 5 to 7; Plate XVII, 1]. These all come from the same areas—the sand and the grave—more or less widely scattered. If the tubes were not broken on the spot, the pieces must have been intentionally brought there. They consist of three, two, four and seven parts respectively. The same observations apply to the blades shown in Plate XXI, 1 to 4, consisting of two, four, two and two pieces respectively. They are restored from bases on the sand and fragments found on the sand and in the grave. Three bases are from the above mentioned cache, which included broken blades and a broken tube section. They, with Figures 4 and 5, also on the sand, differ from all the others in color (bluish-white).

5. The floor of the grave is connected with the earth filler and that with the sand above by a number of restorations, complete and incomplete. The tube pictured as Figure 1 on Plate XVII consists of fragments and sections from the floor very close to the blades above the head; from pieces in the filler thirty, forty-six, sixty-two and ninety-five centimetres above the floor, two being in the concentration above the right hip. Plate XVI, 5, includes a butt end fourteen centimetres above the grave floor, an open-end 1.30 above it, and a middle section out on the sand. There are similar connections in the cases of five other tubes, all parts being on the sand to the east of the grave or in the grave east of its longitudinal centre line. It is difficult not to believe that these were broken on the sand to the east of the grave and the parts scattered about on it and thrown into the grave while it was open and from time to time while it was being filled.

BURIAL, CONSTRUCTION, AND CEREMONIES

We believe that the homogeneity of objects encountered at all levels, their similar manner of placement, and an examination of Plates IV, V, and VI, will have convinced the reader that the mound was built as a unit—if not at one time, at least according to one plan. While not shown by our

published drawings, the upper part of the dark-earth cone extends into the unexcavated portions to the east and south, while the sand from the grave is on a decided down-grade wherever it strikes those portions. We cannot say there are no other original burials, but it is reasonably certain that there is not another sub-surface one placed symmetrically to the one uncovered, as might seem likely from a ground plan alone. At any rate, there is little doubt that the mound and contents, so far as we excavated, pertains to the burial which we found.

We believe the sequence of events must have been more or less as follows:

The builders first deposited a layer of dark earth in an irregular ring about the spot intended for a grave, bringing this earth, or muck, at considerable extra labour from the river bed twenty-five feet below or from a marsh some distance away. They then dug the grave, roughly oval in shape, about 3.50 metres long by 1.30 metres wide, to a depth of 1.40 metres, throwing the comparatively coarse and bright-yellow sand on all sides, much of it over the surrounding dark-earth ring. At some time before completion of the digging, perhaps as the very first or an intermediate step, they built a fire near what became the southerly end of the grave, and maintained it for some time. This was on a perfectly smooth surface, very likely levelled off for the purpose, and after the fire, covered over with sand from the grave.

After digging, the bottom and lower sides, perhaps the whole of the sides of the grave and much of the surrounding sand, were covered with bark. Twigs and leaves in one way or another found their way to the sand where it sloped away from the northerly end of the grave.

The body was laid on the bark, on its back, extended, hands at the side, the legs more or less bowed and one ankle above the other, the head a little west of south, the whole body a little to the east of the centre line of the grave, perhaps to give foot-room in decorating the body [Plate I]. Three, possibly four, chains of discoidal, and a string of tubular shell beads were laid across the face and neck (originally perhaps all on the neck), and a bone flaking or similar tool across the right shoulder. Near by was found a small, poorly made, stemmed blade, partly beneath the right clavicle and scapula, perhaps the cause of death, more likely worked down from above.

Strings of copper and of shell beads of both types, were laid across the chest and down the left side to the hip; copper and discoidal shell down the right side; copper beads across the waist and out over the arms above the wrists on either side. Tubular shell beads ran down from the waist and out across the left femur. Copper beads were looped from the region of the left wrist down across the femurs and possibly up to the right wrist, accompanied part of the way at least by discoidals. Between the femurs, lower down, two strings of tubular and one of discoidal shell beads, were passed transversely over a large tubular pipe, and over the tip of a stemmed blade, stem broken.

Two, possibly three, strings of copper beads led from the shell beads between the femurs to a mass of beads of all kinds, copper and shell, completely covering the ankles and extending half-way to the knees, and filling the space between the lower leg bones to a depth of about seven centimetres. This mass was made up of strings crossing and recrossing each other, and, principally at the bottom, large numbers of *marginella* and *olivella* shells. These appeared rather in sheets than in strings. In close association with the beads was one beaver tooth and one eagle claw, the latter shown in the plate; also two tiny rodent's jaws, and a broken bone knife or similar tool, exact position unrecorded. A flat sheet of the small shells and strings of discoidal beads covered the bark to the right of the lower tibia.

Complete and broken tubes and blades, a sinew or sharpening stone, a stone of uncertain function (sharpening and anvil stone?—Plate XXIV, 9), small celts, graphite, and yellow ochre were disposed about the body as indicated on Plate I.

Without question the body and all of the above mentioned objects not upon the body itself lay upon bark, with the exception of the broken tubes near the right hip. These form the bottom of a series running up the side of the grave. In many cases objects on and about the skeleton were found with remnants of bark above them, and it is highly probable that a sheet of bark was placed over the body, after it had been thus adorned. A half-cylinder of bark just beyond the feet may represent a log here placed to keep such a covering in position.

The body, and some of the objects near the sides of the grave, were covered with yellow sand. The grave was then filled with dark earth. In or on this earth were thrown or placed from time to time a beautiful hematite celt, four leaf-shaped and five stemmed blades, two small notched points of the type found also in the peripheral yellow soil of the mound, four broken blade-points and seventeen end, middle, and base sections of broken tubes (including those shown near the right hip), together with numbers of small fragments, and four apparently similar animal bones. One of these was the metacarpal of the buffalo. The presence of bits of charcoal and coal-black earth undoubtedly has some significance, but is hardly sufficient evidence of a fire having been kindled in the grave.

The decided concentration of broken tubes and blades in the easterly part of the grave, and of the other objects to a lesser extent, and the fact that they were found at varying angles and without any order, may indicate that they were broken and thrown from outside the grave, to the east.

In the meantime, or when the grave was filled, a cache of two complete and three broken leaf-shaped blades, all of materials not found in the cone above, and a long section of broken tube, was carefully placed in a hollow of the sand. Twenty-four small tube sherds were placed near by, close together

EXCAVATIONS AT BEECH BOTTOM

in roughly parallel rows, each with concave side up. Two other tube sections, a leaf-shaped-blade, a broken blade stem and a broken point, a stone celt, some river-muscle shells and a piece of bone (unidentified) were scattered or placed about the sand on the east, and, in the case of one tube section, on the northerly side of the grave. Two of the small notched points occurred at levels indicating that they were found on the sand, but the fact itself was not recorded.

A thick layer of dark earth was now spread over the grave, and over the oval ridge of sand around it, with its objects. The outer portions of this layer which was roughly circular, extended beyond the limits of the sand and so became continuous with the dark material laid down before the digging of the grave. The sand from the grave was therefore completely covered and surrounded by a roughly disk-shaped layer of dark earth, and underlain by it for a greater or less distance in toward the grave [Plates IV and V].

A large ring of yellow surface soil was deposited around the whole. As it was carried higher, its surface naturally sloped down on the outside to the surrounding surface of the ground and its inner surface sloped down and in, toward the grave, from all directions. After the inner side had encroached upon and partially covered the dark colored "disk," it was thereafter accidentally or intentionally mixed with dark earth, giving a very characteristic "pebbled" appearance to the material when seen in cross section. That there was such a ring of surface soil, and that its inner surface sloped down and in toward the grave, is proved by the presence here of irregular thin patches of pure dark earth, or of mixed earth distinguishable from the rest. These were always tilted at a more or less constant angle, up at the peripheral side and down toward the grave, whatever the direction of a sample cross-section [Plates IV and V]. That these patches and the dark and yellow mixture were intentional features is at least indicated by their position, never more than four metres or so out from the edge of the grave, and always continuous from there to it; and by the fact that the dark patches were never tilted in the opposite direction. Further, while there was considerable mixture immediately above the cone, it never had the striking, pebbled appearance of that below.

Before the eastern and inner part of the enclosing ring had risen very high, a fire was kindled there, and split deer bones indicate a feast. These bones were found on levels sloping from the fire down toward the grave, and so confirm the evidence of cross-sections as to the slope in that direction.

As the circular structure grew, its yellow and dark centre, of course, contracted. Instead of completely closing, however, it finally enclosed a mass of dark soil continuous with the blanket of dark covering the sand, but rising a short distance higher than the rest where it covered the grave.

This marked the completion of the mixed earth or inner portion of the circular structure. The whole presented the aspect of a truncated cone resting on its base, with a large shallow funnel hollowed out of it at the centre, the bottom of the funnel plugged up with dark earth, its sides consisting of mixed earth, especially toward the bottom. This funnel was then filled with pure dark earth, giving rise to what we have here called the dark-earth "cone."

In the course of filling it, from time to time the builders paused to deposit caches of blades, single blades, celts, tubes, a slate gorget and a slate pendant, and miscellaneous natural stone objects. These were associated at times with bark, and possibly also with wooden implements or weapons (very doubtful traces of the latter). There was at this time a liberal use of red ochre, which was scattered about, deposited in lumps and smeared on many of the blades. It is possible that river-muscle shells were intentionally placed here, and probable that a stone pendant and a stone platform pipe were also so deposited. Toward the bottom of the cone was a deposit of coal-black masses of earth, interspersed with small bits of charcoal, exactly like that in the grave. Nothing was associated with it.

The cone extends upward as pure dark earth to about the 2.60 level (except to the north) and then gradually fades into the yellow soil above as the level rises. In this twilight zone, really the top of the cone, were placed a tube, fourteen blades (singly and in caches) and two lumps of red ochre. Prior investigators dug two large pits deep into the cone, east of its centre, and probably removed some of its contents. Six scattered tube fragments in this disturbed area, close to the outer surface of the mound, indicate breakage by this agency, rather than a resumption of the ceremonial breaking which seems to have preceded the erection of the mound proper.

There seem to have been four distinguishable periods when most of the objects were placed: the arrangement and decoration of the body, with careful placing of objects, yellow ochre and graphite about it, and with some breakage of tubes and blades; the period during which the grave was filled, characterized by much breakage, with but little careful placing of objects; and the periods when the cone had risen to the 1.25-1.50 level and again when it was about complete, each characterized by the careful placing of many objects and of red ochre, and probably not accompanied by ceremonial breaking.

The contents of the cone are cleanly separated from objects on the sand by the sterile mixed earth between them, and from the contents of the grave by a sterile layer of the dark soil a metre deep (from the 0.75 down to the -0.25 levels).

The whole structure was now covered with a thick layer of yellow surface soil and the mound was complete. In heaping up this final and presumably

protective covering, the builders apparently lost site of the centre of their operations thus far, and the topographical centre of the finished structure was shifted two metres to the east.

CULTURAL AFFILIATIONS

Absence of any original inclusion of European wares indicates construction of this mound prior to the advent of the white men. Location on the banks of the Ohio, the presence of copper and of gulf-coast shell, the form of the mound, and the forms of tubes and blades place it definitely in the Upper Mississippi Area, as would be expected.

To assign it to one of the specific cultures of that area is not so easy. It can scarcely be Hopewell, without characteristic features such as prepared floors, clay burial platforms, crematory rites, wooden structural remains, elaborate copper, shell and mica arts, effigy and platform pipes,¹ beautiful obsidian pieces, and so forth.² The apparent erection of an entire mound in connection with one carefully laid-out burial, the absence of pottery, of discoidal stones, the lavish use of shell beads, the absence of worked bivalve shells, and of pipes with up-turned bowls seem to rule out the Fort Ancient culture.³

There is a third prehistoric mound culture in the Ohio area now in process of definition, the Adena. Shetrone, on the basis of excavations to date describes it thus: "Their mounds . . . are noted for their symmetry of form and careful construction and often are of great size. Like the Hopewell mounds, those of the Adena occur in close proximity to streams . . . the Adena culture is known to have the following characteristics: shapely conical mounds, located singly or in groups; uncremated burials, in log cists, placed either below, above or on the original surface; use of copper, mainly for ornaments; use of mica; admirable artistic ability in sculpturing objects in the round; use of tubular tobacco pipes. Far too little is known of the Adena type of mounds, and further exploration promises to enhance the importance of the Culture." This culture is linked with the mounds of the Kanawha Valley, West Virginia, and with the great Grave Creek mound, only thirty or forty miles down the Ohio from Beech Bottom.⁴

¹ Three tubes, regarded by Mills as pipes and a "modified tubular pipe," were found in the famous Tremper mound. One approached the type which is found at Beech Bottom in such quantity, and is shown in section in Plate X, 10. These tubes were not regarded as typical. See Mills, William C., *Certain Mounds and Village Sites in Ohio*, Volume 2, pages 292-295, Columbus, 1917.

² Shetrone, Henry C., *The Mound Builders*, pages 190-22, New York, 1930, and *The Culture Problem in Ohio Archeology*, American Anthropologist, N. S. Volume 22, Number 2, Lancaster, 1920.

³ Mills, *Op. Cit.*, Volume 1, Part 2, pages 5-23; Shetrone, *The Mound Builders*, page 182, and *The Culture Problem in Ohio Archeology*, cited above.

⁴ Shetrone, *The Mound Builders*, pages 167-169.

By the process of elimination we should expect the Beech Bottom structure to belong to unidentified culture, or to be Adena or a local variant of Adena. In view of the small number of Adena mounds opened and reported, the last conclusion would seem to be the best working hypothesis. We have a reasonably symmetrical mound, close to a stream, very carefully constructed. We have an uncremated burial, though not in a log cist. We have copper used for ornament only. We have the tubular pipes (if they are pipes), a great rarity at Hopewell and Fort Ancient sites.

The tubes are identical with those from the Adena mound, except for the outside flattening of the latter on two opposite sides at the base [Plate X, 8 and 9]. The beautiful tubular effigy pipe from this mound, so often pictured,¹ is of the same type so far as internal design is concerned. Figures 11, 12 and 13 illustrate other Ohio tubes in the Columbus Museum.

The Beech Bottom leaf-shaped blades would be entirely at home in the Adena Mound. Most of the stemmed blades from Adena sites which were examined have a squarish rather than the pointed stem universal at Beech Bottom. However, Mr. Shetrone advises the writer that blades of the latter type are also typical, and one from the Westenhaver (an Adena culture) mound is identical with them.

The latter mound contained a bone tool identical with the "flaker" from Beech Bottom; an effigy bone implement or handle which is essentially identical with that found here, except for the effigy feature; and a broken celtiform tool not unlike that shown in Plate XXII, 9.

Two slate gorgets from the Adena mound are of the same material and general form as the Beech Bottom example.

The structural and presumably ceremonial use of dark earth, brought from some distance, seems to be unique in the eastern part of the Mississippi area,² and the writer has been unable to find any account of a deposit of earth similar to the inverted "cone" here found, implying as it does, the deposit of a peripheral ring of earth as an early step in construction.

There is a plain statement of the presence of two types of soil at the lower levels on Schoolcraft's early account of the partial excavation of the Grave Creek mound (where large numbers of shell beads were found).³ And in excavating a central shaft in a thirty-three foot conical mound of the Charleston Group, in the Kanawha valley, the Bureau of American Ethnology encountered a seven-foot stratum of softer and darker earth at the bottom. This contained remnants of bark, ashes, animal bones and casts of timbers.

¹ Mills, *Op. Cit.*, Volume 1, pages 28-30. Mills and Shetrone have regarded tubes of this type as pipes. The Adena Mound tube shown as Plate X, 9, and also Figure 11 of the same plate, are blackened on the inside.

² Shetrone, *The Mound Builders*, page 44.

³ "By the dark and carbonaceous character of certain parts of the earth, which thus exposed contrasted with its yellowish or grayish parts, it was evidently a mixed pile of sand and loam and carbonaceous particles."—Schoolcraft, *Op. Cit.*, page 382.

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The Bureau concluded that this had been a timbered vault, though the excavator was not of the same opinion.¹

Our conclusion is that the Beech Bottom mound was built by peoples of Adena or related culture, and, judging from its geographical position, that its closest affinities are to be sought in the little known Kanawha Valley region of West Virginia.

¹ Thomas, Cyrus, *Burial Mounds of the Northern Section of the United States*, Fifth Annual Report, Bureau of Ethnology, Washington, 1883-1884.

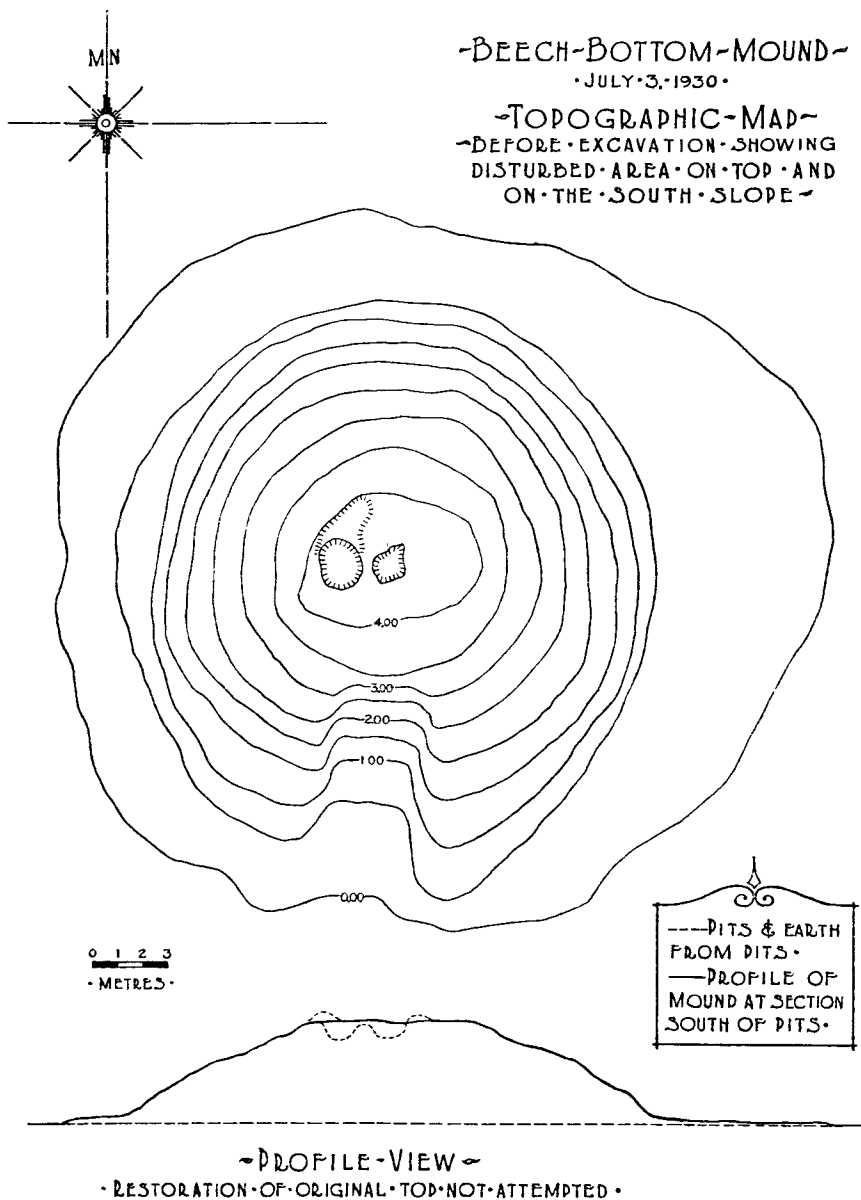
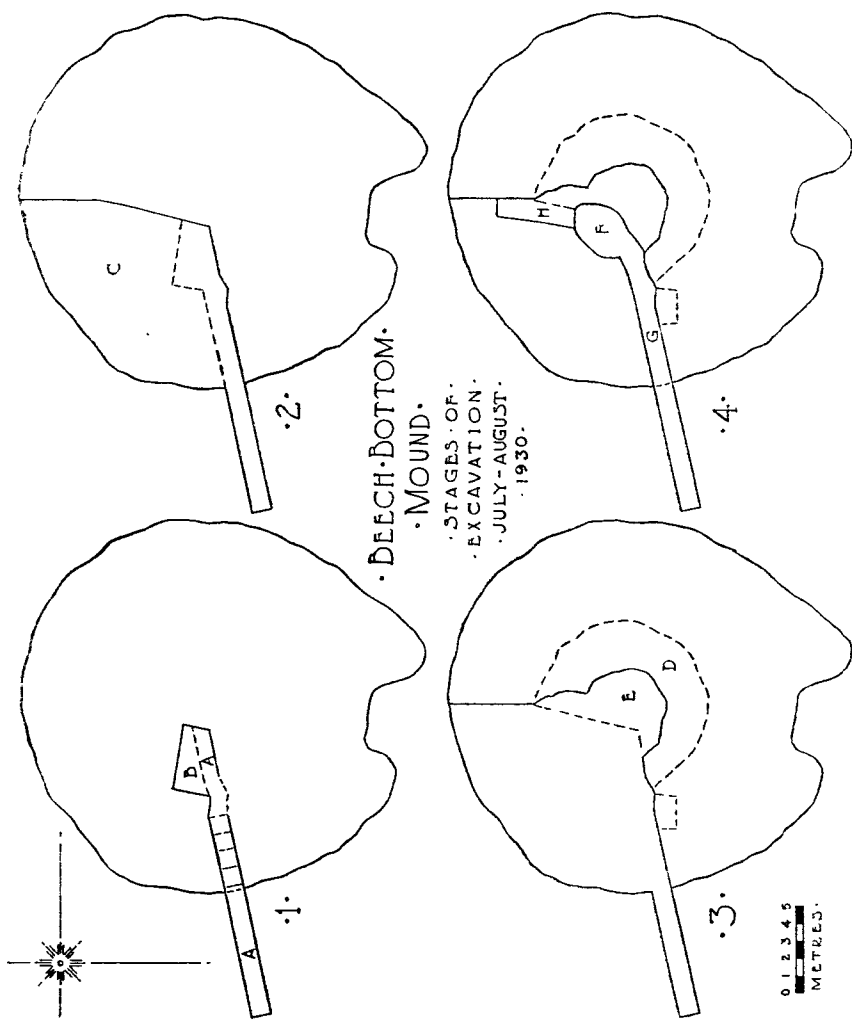


PLATE II.—BACHE AND SATTERTHWAITE: Excavation at Beech Bottom.



• BEECH-BOTTOM •
 • MOUND •
 • STAGES OF •
 • EXCAVATION •
 • JULY - AUGUST •
 • 1930 •

PLATE III.—BACHE AND SATTERTHWAITE: Excavation at Beech Bottom.

• BEECH-BOTTOM MOUND •
 ~ ELEVATION ~ OF
 SOUTH ~ WALL
 OF EXCAVATION ~

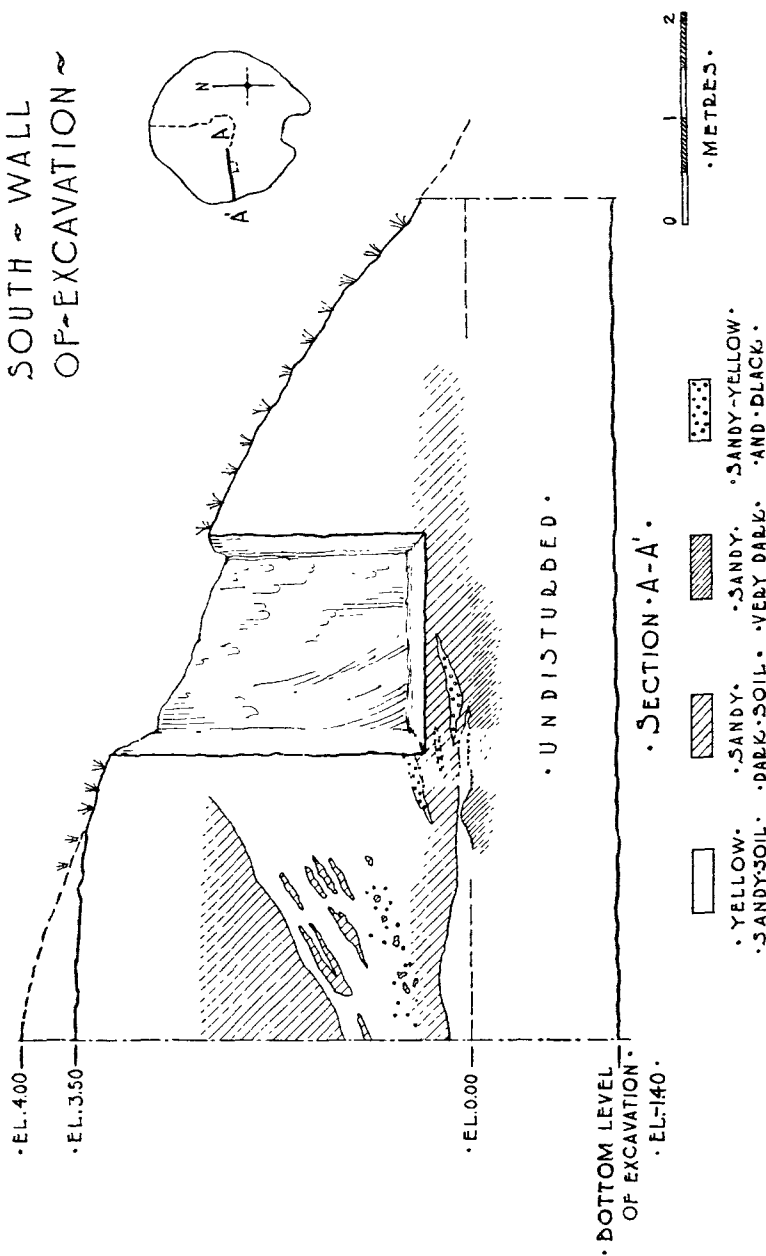
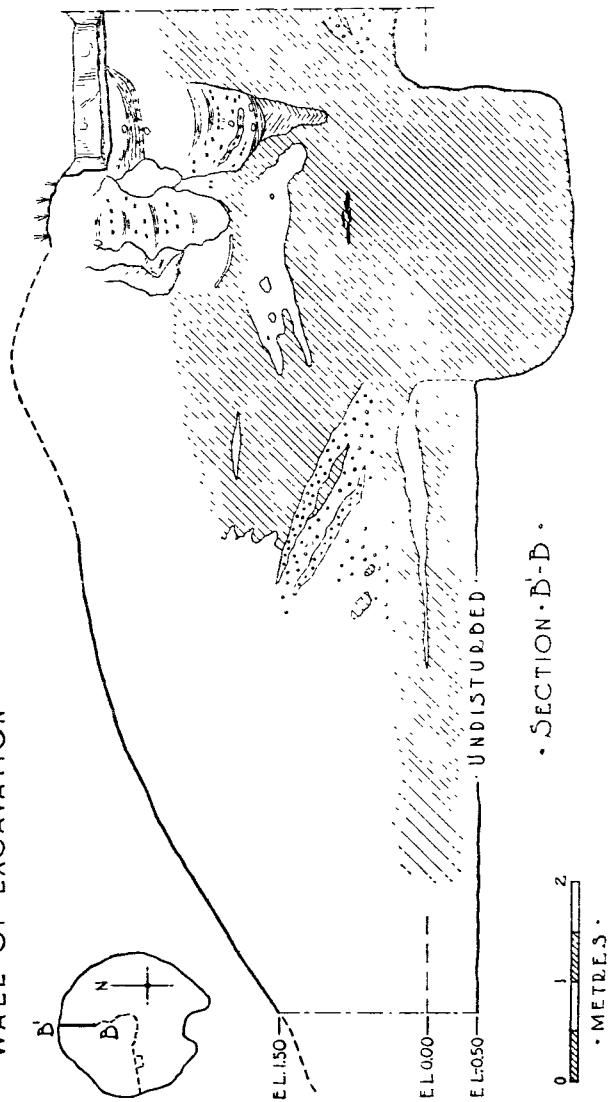


PLATE IV.—BACHE AND SATTERTHWAITE: Excavation at Beech Bottom.

~BEECH-DOTTOM-MOUND~
 •ELEVATION OF EAST•
 •WALL OF EXCAVATION•



- YELLOW SANDY SOIL•
- SANDY DARK SOIL•
- SANDY-YELLOW AND BLACK, YELLOW SOIL•
- DARKER, YELLOW SOIL•
- SAND AND CLAY LAYERS•
- CHALK COAL•

PLATE V.—BACHE AND SATTERTHWAITE: Excavation at Beech Bottom.

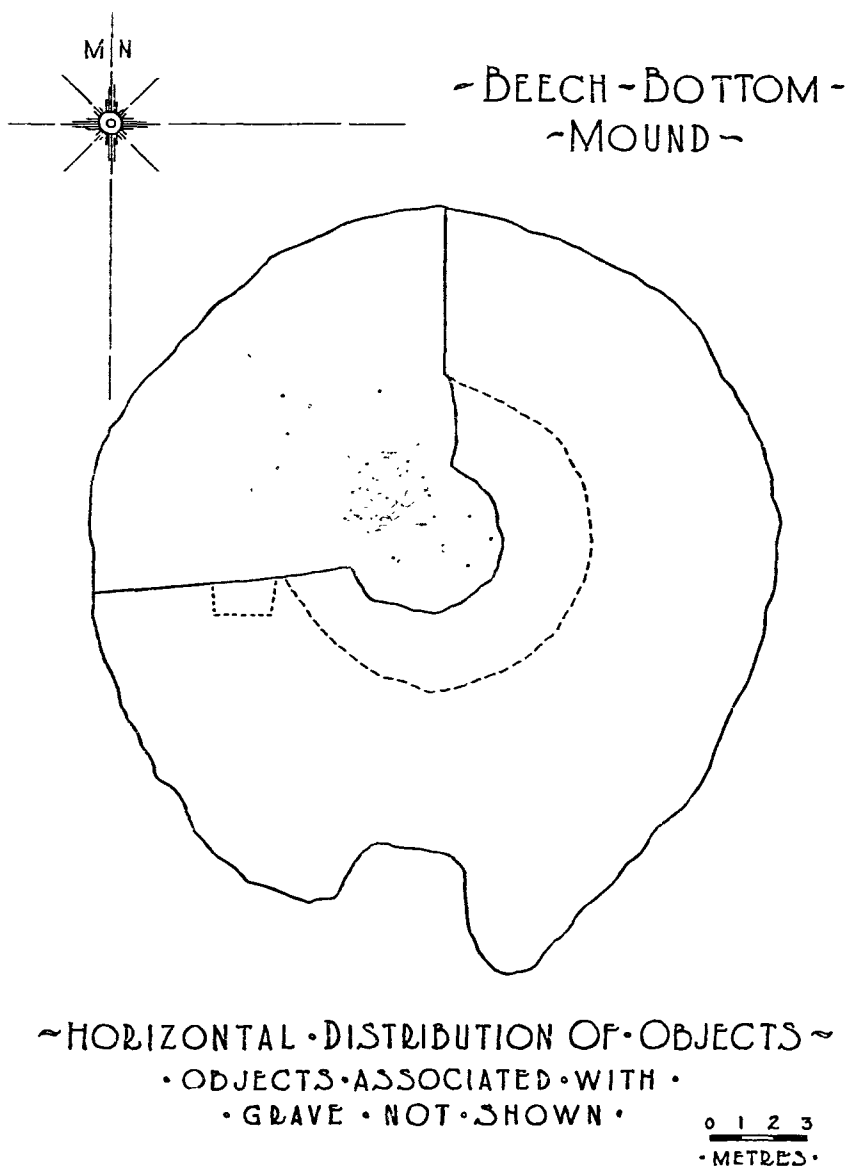
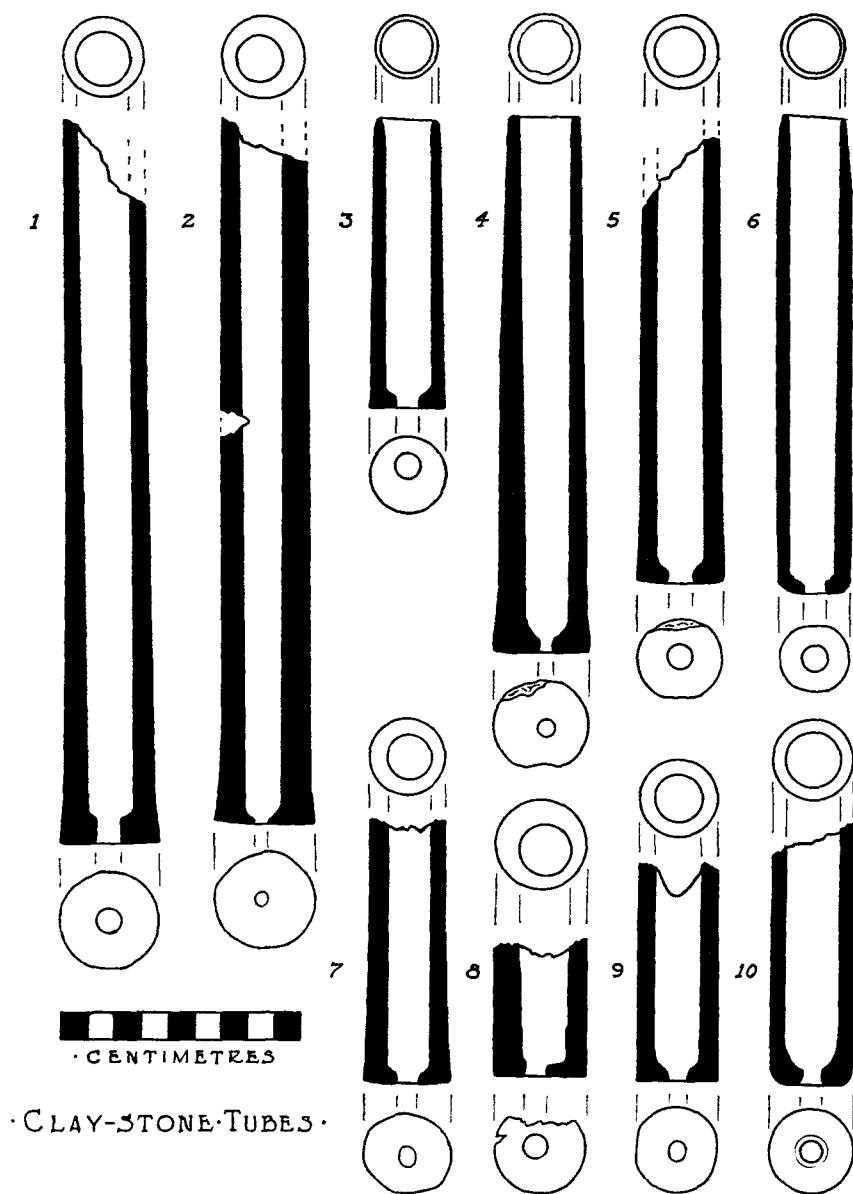
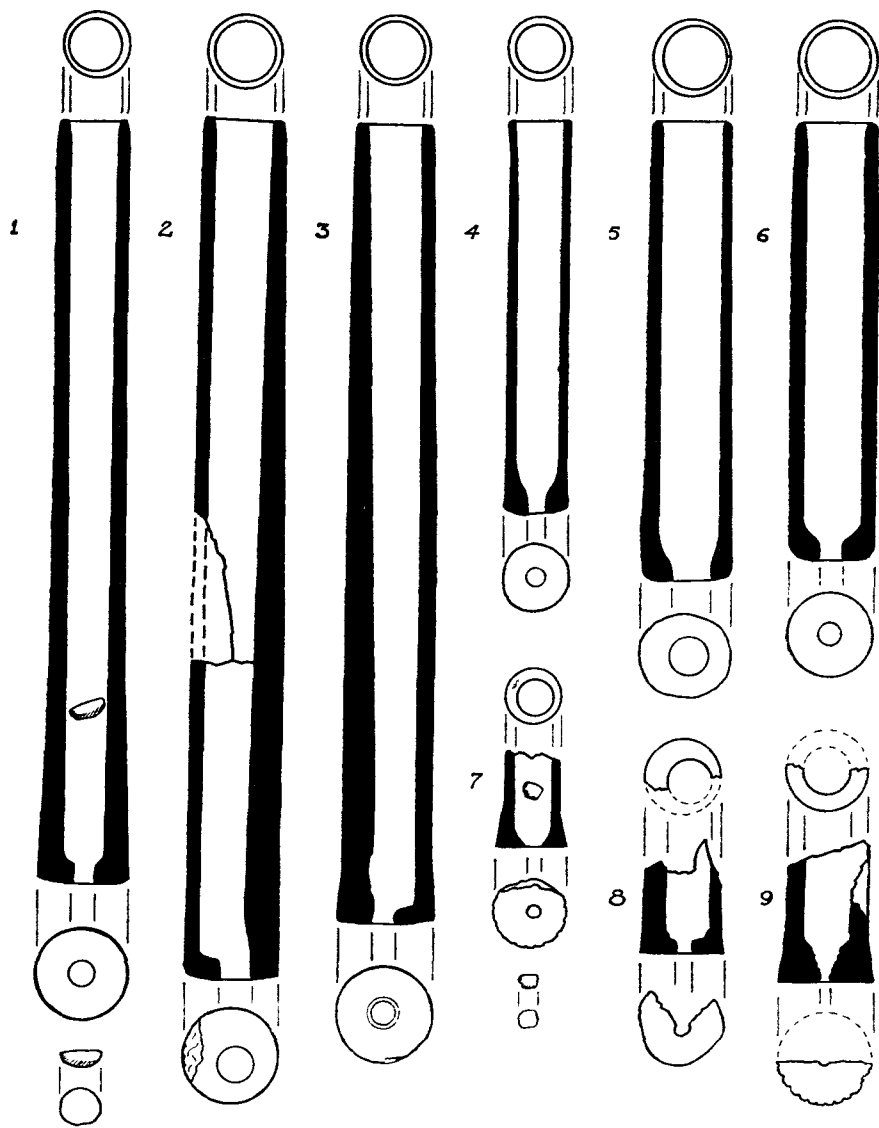


PLATE VII.—BACHE AND SATTERTHWAITE: Excavation at Beech Bottom.

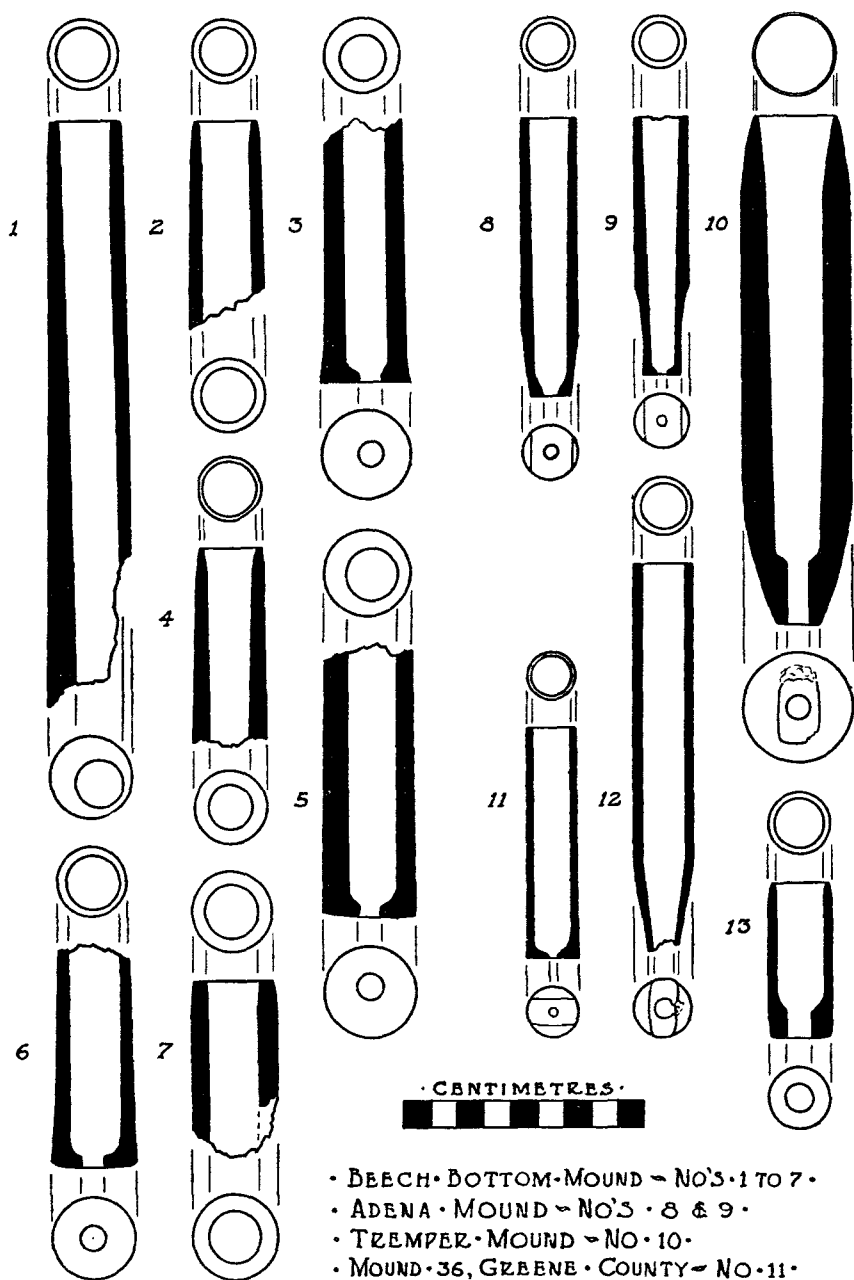


· BEECH BOTTOM MOUND ·



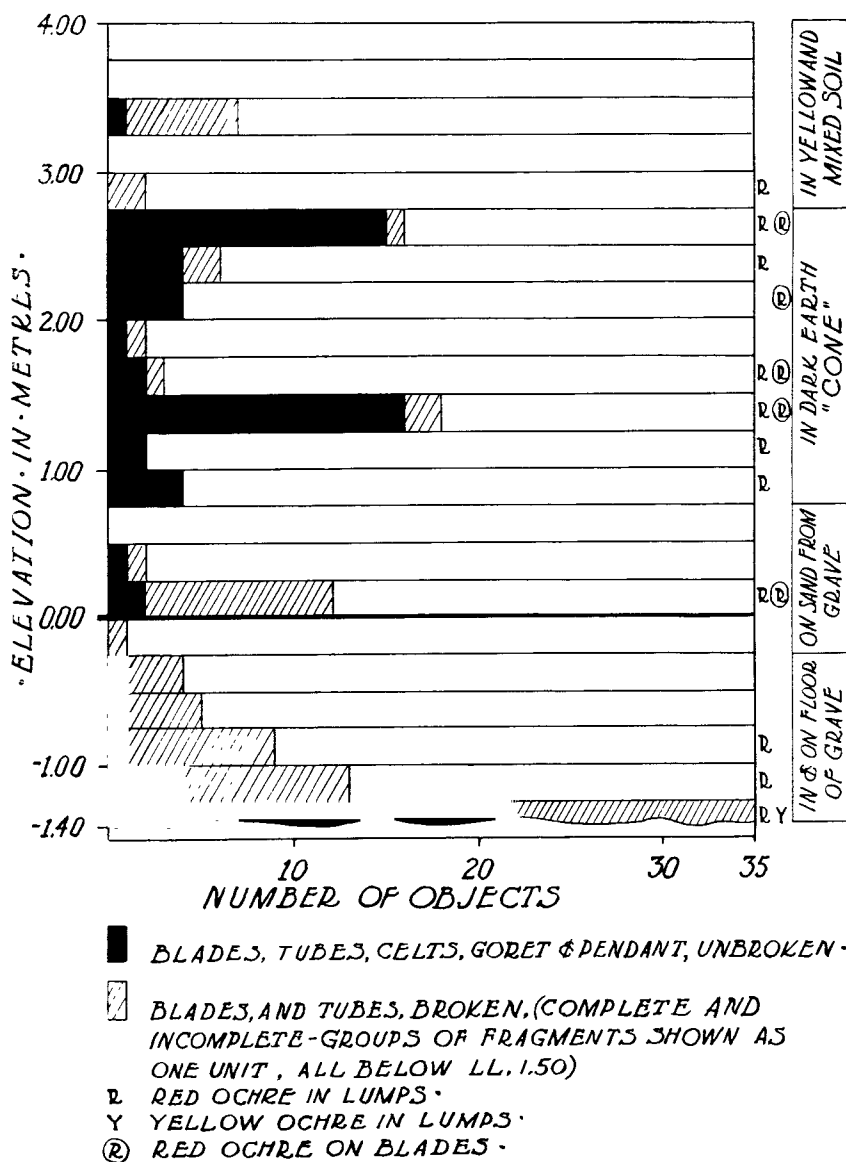
• CENTIMETRES •

• BEECH • BOTTOM • MOUND •



- BEECH-BOTTOM-MOUND - NO'S. 1 TO 7.
- ADENA-MOUND - NO'S. 8 & 9.
- TREMPER-MOUND - NO. 10.
- MOUND-36, GREEBE-COUNTY - NO. 11.
- ROBERT-HARNES-MOUND - NO. 12.
- PROBABLY-SURFACE-FIND - FRANKLIN-COUNTY - NO. 13.

PLATE X.—BACHE AND SATTERTHWAITE: Excavation at Beech Bottom.



• BEECH-BOTTOM-MOUND.



FIGURE 1



FIGURE 2



FIGURE 3



FIGURE 4

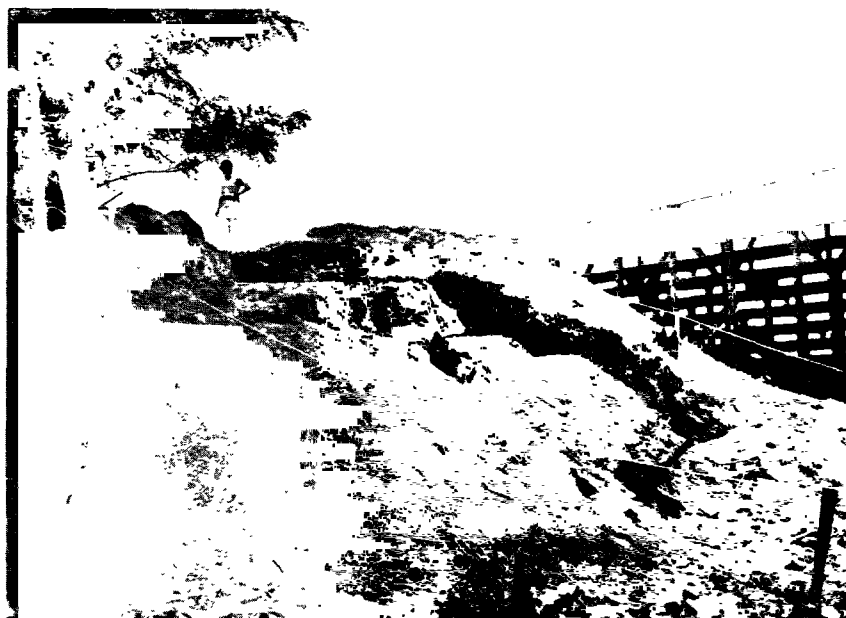


FIGURE 1



FIGURE 2



FIGURE 3

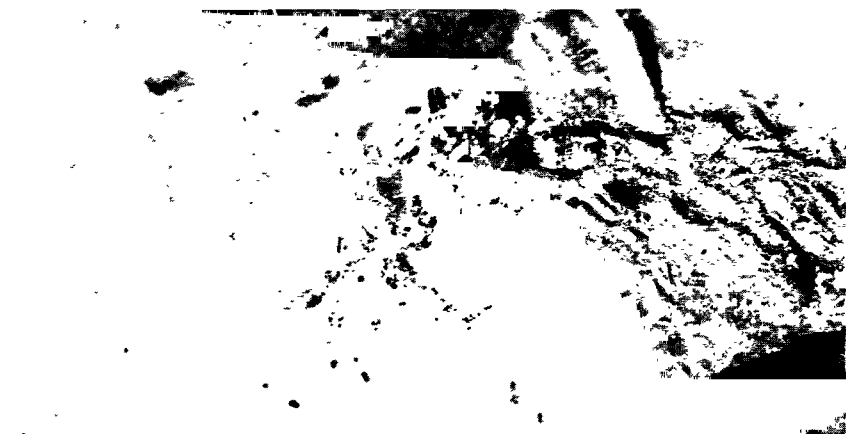


FIGURE 1

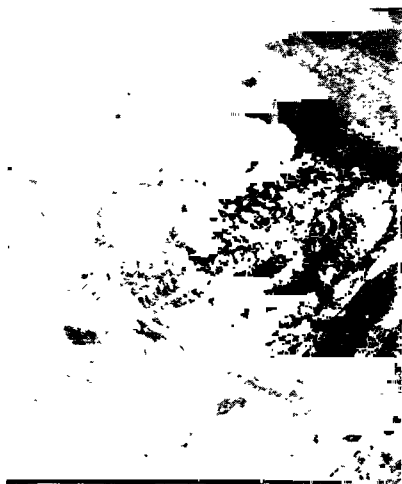


FIGURE 2



FIGURE 3



FIGURE 4



PLATE XV. —BACHE AND SATTERLIHWAITE. Excavation at Beech Bottom.



PLATE XVI. BACHE AND SAUTERDHWALL. Excavation at Beech Bottom.



PLATE XVII.—BACHE AND SAFERTHWAITE. Excavation at Beech Bottom



PLATE XVIII. — BACHE AND SATERFURTHWAITE. Excavation at Beech Bottom.

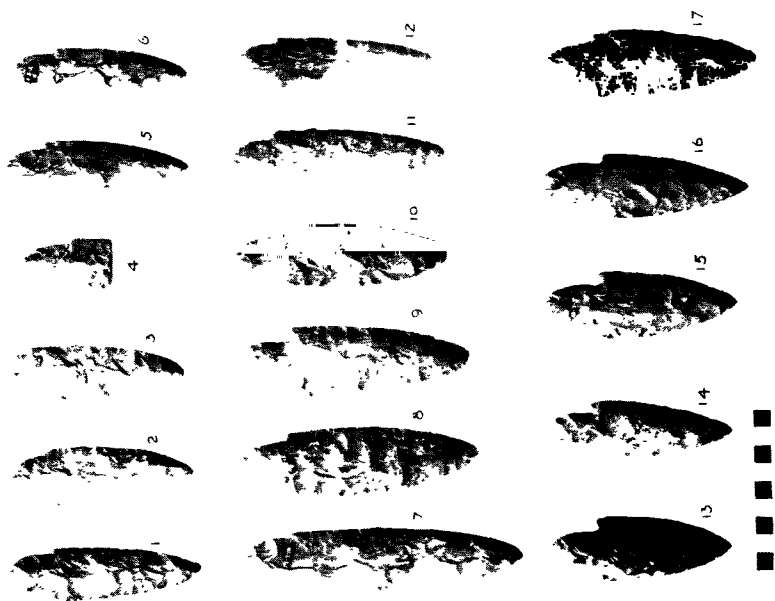


FIGURE 2

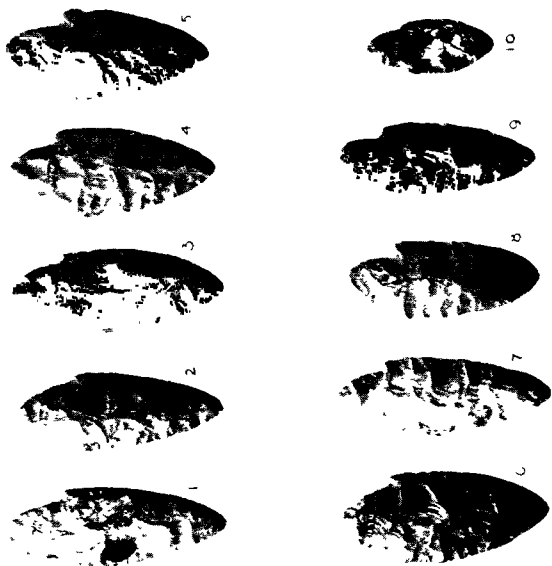


FIGURE 1



FIGURE 1

PLATE XX. BIRCH AND SATTERTHWAITE: EXCAVATION AT BEECH BOTTOM.

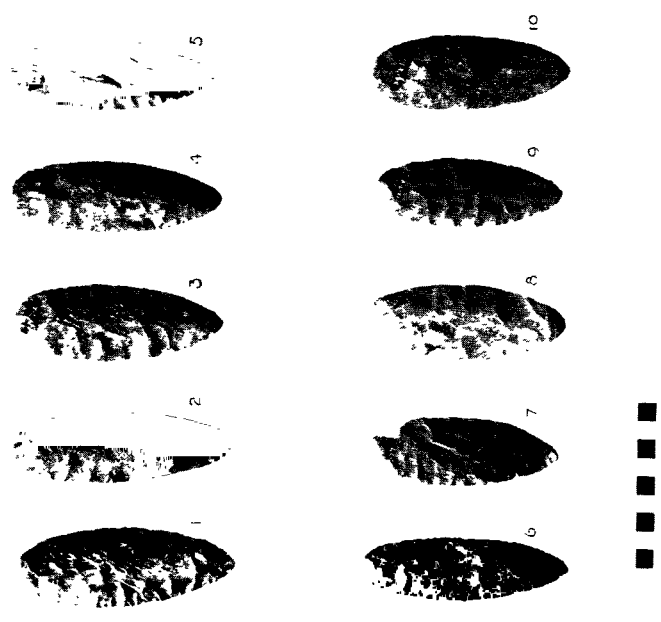


FIGURE 2



PLATE XXI. — BACHE AND SATTERTHWAITE: Excavation at Beech Bottom.



PLATE XXII. BACH AND SAUERHWALE. Excavation at Beech Bottom.



PLATE XXIII.—BACHE AND SALTERHWAITE. Excavation at Beech Bottom.



PLATE XXIV —BACH AND SATTERHWAULT—Excavation at Beech Bottom



PLATE XXV —BACHEL AND SATTERTHWAITE: Excavation at Beech Bottom



PLATE XXVI. Howard: Research in the Guadalupe Mountains.

ARCHAEOLOGICAL RESEARCH IN THE GUADALUPE MOUNTAINS

BY EDGAR B. HOWARD

ALTHOUGH there has been extensive archæological work carried on in the Southwest in recent years, much still remains to be accomplished, particularly in southeastern New Mexico, and across the boundary-line into Texas. With the hope of trying to fill in some of the missing parts of the picture of this area, work was undertaken, during the past summer, along the southwestern and eastern slopes of the Guadalupe Mountains, the principal object being to ascertain whether any evidence of Basket-Maker culture could be found there. The work was conducted under permission granted by the U. S. Department of the Interior.

Caves have not only furnished shelter to man against the elements and protection against his enemies and wild beasts, but they have also been utilized as storage and burial places since remote times. The caves of the Southwest, on account of the very dry climate prevailing, offer particularly favorable places in which to find material evidence of the early culture of that region. The dirt and dust is so dry in these caves that baskets, sandals, and many other things are preserved in a most remarkable manner, thus allowing one to draw an unusually complete picture of the life of these early people.

The earliest people in the Southwest, of whom there is definite knowledge, are the Basket-Makers. This name was applied to them by Richard Wetherill and his brothers, when, in 1889-90, they found remains of a people stratigraphically older than the Cliff-Dwellers, whose ruins they were exploring in Grand Gulch, Utah.

There are two distinct cultures generally recognized in the region spoken of as the Southwest, namely the Basket-Maker and the Pueblo; this latter group also includes the Cliff-Dwellers. The gap between the Basket-Maker and the Pueblo has been narrowed by what is known as the post-Basket-Maker and the pre-Pueblo cultures.

Basket-Makers of Period I are thought of as nomads, with whom hunting predominated, followed in Period II by the introduction of corn, supposedly from Mexico. During this time they began to dig pits in the floors of caves in which they stored their grain and also buried their dead. Crude sunbaked vessels were developed also about this time. As agriculture became better established and they became more sedentary in their habits, they began, in Period III, to enlarge their pits or cists, lining them with stone

slabs and covering them with poles and brush, from which pit-dwellings later developed. At the end of this last period of the Basket-Makers, true pottery was introduced and later highly developed by the new group who appeared on the scene.

The Basket-Maker was long-headed and did not have an artificially deformed skull as did the Pueblo peoples who followed him. As his name suggests, he made excellent baskets. He also made sandals of yucca leaves and yucca cord; well made twined-woven bags, fur-cloth robes, and instead of the bow and arrow he used a spear-thrower. He had no cotton and apparently did not domesticate the turkey, both traits appearing later.

This gives a brief sketch of the early people with whom we are here concerned. It leaves out the question of chronology, however. Dr. A. V. Kidder, in his "Southwestern Archaeology," assigns a date to the Basket-Maker of 1500 to 2000 B.C. and this date appears to be generally accepted as conservative. Dr. A. E. Douglas, by a study of tree-rings, has developed a time-chart by which he has been able to date definitely many Pueblo sites from log-beams recovered from the ruins. His method will, in time, furnish further data on which to base an accurate chronology.

The Southwest from an archaeological point of view differs somewhat from the geographical division of our country, though the former continues to enlarge its boundaries as new culture-sites appear. At present this region seems to take in Arizona and New Mexico, the southwestern part of Colorado, most of Utah, eastern Nevada, and the western edge of Texas. Across the border it covers also a part of northern Mexico. We are concerned here with only a very small part of this large area, namely the southeastern part of New Mexico and just across the boundary line into Texas; more particularly with the country about the Guadalupe Mountains.

The Guadalupe Mountains [Plates XXVI and XXXVII] are an extension of the Sacramento Mountains southward across the New Mexico-Texas line into Culberson County, Texas, where they rise abruptly to a considerable height from the arid plains below. The peaks at Guadalupe Point rise more than 9000 feet above sea-level, the southernmost one terminating in an almost sheer precipice of limestone 1500 to 1800 feet thick. This limestone, according to Darton, is known as the Capitan limestone and is hard and massive, and merges northward in New Mexico with the Chupadero formations. Southward from Guadalupe Point, the Capitan limestone ends and the sandstone of the Delaware Mountains begins and extends on further into Texas.

On the west and southwest side of the Guadalupe Mountains [Plate XXXVII. 2] are salt lakes surrounded by white sand dunes of gypsum. On the east the land slopes gradually eastward and merges with the Texas plains. Both sides, however, are cut by canyons which serve to carry off the torren-

tial rains occurring in this region at times. Mostly the canyons are dry; occasionally one finds a canyon in which there is a perennial stream, such as the upper part of "Last Chance Canyon" [Plate XXVII, 2] on the east slope of the mountain.

Except near the top of the mountains, where the growth of spruce and pine and long grass is a welcome sight, and in spots along the canyons favored by ground-water, the country presents the usual semi-desert aspect of the Southwest—innumerable varieties of the cactus family, scrub-oak, piñon, cedar greasewood, sage and several varieties of yucca. Near the top and along the bluffs of the southern end of the Guadalupe there are a few mountain sheep still to be found. There are also deer, grouse, Mexican quail, occasionally a wild cat or a panther, and countless rabbits.

Whether the country below the top of the mountains, sloping away to the flats on the west side, and towards the Pecos River on the east, was always as dry as at present, is hard to say. Old settlers, about there, are inclined to say that climatic conditions are dryer now than they used to be; but old settlers everywhere are apt to comment unfavorably upon the weather. There is some evidence that where the grass has been grazed off by goat and sheep, the wind has gotten in its work and turned parts of the country into a veritable desert. On the other hand, through the tree-ring work of Dr. Douglas, it has been definitely established that, during the earlier Pueblo occupation of the country north and west of this locality, periodic droughts occurred, some of which were so extended that they were, undoubtedly, a contributing cause to the abandonment of these Pueblo villages.

Whether conditions were as dry as at present or not, there is evidence of early occupation of the country on both slopes of the Guadalupe Mountains. In the canyons there are caves of all kinds, ranging in size from the wonderful Carlsbad Cavern to small shelters. Most of them have been more or less disturbed by ranchers and cowboys looking for buried treasure, or by "pot-hunters." The old Butterfield trail passed along the Delaware River and close around the base of Guadalupe Point on its way west, and the many stories of "hold-ups" along its route, in the days before the Civil War, help to fire the imagination of these treasure seekers. "Billy the Kid," the hero-bandit of that region, roamed this part of the country, and through the tales woven about his career, no doubt have helped to keep alive the belief in huge caches of treasure, buried in the caves along this trail. There are also those who "specialize" in the hunt for Spanish treasure. The occasional find of a silver stirrup or a wrought iron bit lends zest to the search. Thus it is hard to find a cave that someone has not been into before you and has practically turned up-side down.

Preparation for the hunt for Basket-Maker caves began at Alamogordo, New Mexico, and a preliminary trip was arranged by Mr. Tom Charles, who

is largely responsible for the interest in archaeology in that vicinity, and whose help and friendship I greatly value.

With Demsen Lewis as guide, Mr. Charles and I crossed the Sacramento Mountains and headed for Little Dog Canyon on the west slope of the Guadalupe. The road, if such it could be called, disappeared completely among the boulders of the dry river bed, and brought the car to a halt with two flat tires. We had come about three miles from Mr. Martin Lewis's place and now walked about four miles further up the canyon to a cave which Demsen Lewis knew about.

The cave was a short distance beyond the point where the canyon narrows into steep walls on either side. It was well hidden by bushes and hackberry trees in front of the entrance, which was some forty feet up the side of the canyon. The entrance was narrow and rather low. Inside, however, it opened into a larger and higher chamber. As soon as we directed our flashlight into the interior we were greeted by a swarm of bats; after smoking them out, the floor of the cave showed signs of recent digging all along the walls. We found no evidence whatever here of occupation, and the same was true of another cave a short distance up the canyon on the opposite side. So we abandoned Little Dog Canyon and returned to the car.

The following day we moved further south across the New Mexico-Texas line to the ranch of Mr. J. A. Williams of Ables, Texas, to whom grateful acknowledgement is made for the coöperation shown by him in allowing us to excavate in one of the caves on his land. In a direction a little south of east, and between his house and Signal Peak service station on the El Paso-Carlsbad Highway, there are a number of deep, barren canyons, and in most of these are caves of various sizes, some of them used as goat-pens in the winter time.

About three miles slightly north of west from the service station, and between here and Mr. Williams's house is a large cave which looked promising enough to do some digging in, regardless of the fact that it showed unmistakable signs of having been previously disturbed. The canyon in which the cave is located seems to have no name; but sighting directly at the centre point of Guadalupe Peak, the cave was approximately fifteen degrees east of south from the peak. It is in the southwest corner of Section 13, Block 121, Culberson County, Texas. The entrance was some two hundred feet up the left wall of the canyon, facing almost due east, and the walk up to it was very steep [Plate XXXVII, 1].

We returned to Alamogordo to equip for the actual digging we had decided to do at this place. I went back to Signal Peak service station in a few days with Mr. Ray Charles and two Mexicans, making our camp at this point on account of being able to secure water there. We carried to

the cave our equipment, including a wheelbarrow, which nearly wrecked the expedition in getting it up the side of the canyon.

When we arrived, Mr. Williams was sitting at the top of the canyon wall on the other side from the cave, with a gun across his knees. He explained that a young man had come on his place some time previously, and had dug up this very cave without telling him anything about it; and having heard that this same man was in the vicinity again, with the same purpose in mind, he was "laying" for him. Although I was in hearty sympathy with his feelings, I was glad he recognized me alive instead of dead.

The cave, as I have said, was fairly turned up-side down, with large holes dug on the right hand side at intervals all the way to the back, and the dirt and rock taken out piled up around the holes like small craters. At the front part of the cave large blocks of stone from the roof had fallen off. From the point of the south wall due north to the opposite wall, the entrance was nearly sixty feet, and from the centre of the entrance to the rear of the cave was slightly over sixty feet. However, the right hand side extended back about a third again as far as the other side. The roof which was quite high at the entrance sloped sharply at the back where there was hardly standing room.

The front part of the cave seemed to be the least disturbed, so we began our excavation there, confining it to the right side of the cave only, leaving the left side for some future time. The rocks kept us busy for some while, and the Mexicans vied with each other in the size of the rocks they could send crashing down the canyon. After we levelled off a place at the front we began working back towards the holes already dug. The dirt was screened at the entrance before throwing it out of the cave, and in this way we recovered bits of cord, bone, spear-shafts, basket fragments and a few pieces of pottery. Clumps of grass had been dug out of some of the holes, excavated before we got there, as this lay around the holes in considerable quantities.

In order to get some idea of the depth of the dirt on the cave floor, we dug a hole six feet deep on the right hand side, near the wall and where there appeared to be no great disturbance. Below the irregular surface were loose stones, dried grass and cave dust; then came twelve inches of white ash and rocks, where there had evidently been a floor level, and where in some places was a kind of packed manure. Below this for twenty-four inches was a compact hard layer of dirt, followed by twenty-four inches of gravel, pieces of stick, pine needles and signs of rats. At the sixteen-inch level were found bits of bone and cord made of yucca fibre. The following are some of the objects recovered:

A fragment of heavy, twined-woven cord bag, typical of Basket-Maker work, and with red cord decoration [Plate XXVIII, 1].

Pieces of two and three strand cord, fringe and various types of cord and netting shown in Plate XXVIII. 6 and 7, and in Plate XXIX, 3 to 6.

Small corncobs shown in Plate XXIX, 7, various knots and loops of yucca leaves, such as were used to bind twigs and splints for making baskets or other objects; a bone awl three inches long [Plate XXXI, 6]; a small object, probably of ceremonial use, made of the dew-claws of the deer, fixed at regular intervals on a small stick [Plate XXXI, 5].

A sandal, six inches long, of wickerwork, made of whole yucca leaves, pointed at both the heel and toe by drawing together at each end the two yucca leaves, forming the warp elements [Plate XXIX, 1].

Among the wooden objects are a foreshaft seven inches long, pointed at both ends [Plate XXX, 2]; a wedge battered at the end [Plate XXX, 3]; a bark scoop; and a number of sticks of various use, some with cord markings on them.

Only one stone implement was recovered, a spear-point, or possibly a knife of rhyolite, shown in Plate XXXI, 3.

There were a number of animal bones, such as the skulls of some rodent; deer leg-bones; and a few small bones, and pieces of skull of a human.

A few fragments of pottery were also found, but as they were found in the previously disturbed dirt, no definite level can be assigned to them. They are rather well made, with a fairly coarse sandy binder. Some pieces are of a blackish-gray color, while others are a dull reddish-brown, due to firing; the outer surface quite rough.

It is my understanding that several baskets, a number of sandals, a skull and other objects to a considerable amount were taken from this cave, and are in private hands in Carlsbad, New Mexico.

A second cave on this side of the mountains was also examined; but no excavation was done, and for the very good reason that the cave was in a very inaccessible place. This particular cave is in the northwest corner of Section 46, Block 66, and is also on Mr. J. A. Williams's land. In an air-line it is located about three or four miles somewhat west of north from his house, but to get to it is many miles further and a long climb up the Guadalupes. It is approximately a mile above the flats and near the top of the uppermost bench of the mountains at this point. To get to it you climb up to the top bench just below the talus sloping from the peaks, following around one spur after another till you reach the canyon where the cave is located. It has to be approached by going above it and then around and up to it from the outer edge, as the wall of the canyon is very steep at this point. It faces almost southwest.

Its inaccessibility accounts for it not having been disturbed. It is very large—much larger than the one just described, with a wide high roof at the front. At the rear, and on the left hand side, is a high-roofed chamber going off at right angles. The dust is several feet thick in this part of the cave and the floor surface is thickly covered with bat guano. The roof was

blackened with smoke and also with the excreta of thousands of "daddy-long-legs," which gives almost the same impression as smoke.

At the right, towards the back of the outer chamber, was a low pile of rocks among which we picked up a piece of knotted fibre such as might have formed a sandal tie. By the opposite wall was a sort of pit which may be what, in that part of the country, is called a "mescal pit." Not being properly equipped to excavate this cave, chiefly on account of the difficulty of transporting water, we left the cave as we found it; but with the sincere hope of being able to return at some future time to do the work properly. It took us forty minutes to climb down from here to the bed of the canyon, and then we were still high above the flats to the west. On the way Mr. Williams pointed out two mountain sheep to us.

The caves on the east slope of the Guadalupe seem to be more numerous, for nearly every canyon has some. Before doing any excavation work on this side, I spent a number of days, with Mr. R. M. Burnet, of Carlsbad, as my guide, in reconnaissance of the canyons west of here. Without "Bill" Burnet's able help the results would have been very meager. We went first to Anderson Canyon, where we found a toe of a sandal at the rear of a cave which had not been much disturbed. We came back to this cave later to do some excavation. We also investigated caves in Pine Canyon; but, as we understood that Dr. Mera from the Laboratory of Anthropology at Santa Fé expected to work on the caves in this canyon later on in the fall, we did nothing more than look them over. They all appeared to have been previously disturbed.

Making Carlsbad my base, I then decided to concentrate on the canyons tributary to Last Chance Canyon on the south side, this last named canyon being one of the largest tributaries of Dark Canyon. We stowed our equipment in the back of the Chevrolet and all over Bill's ancient "T-Model," and with our force augmented by two energetic young men from Carlsbad, by the names of Julian Shattuck and Norman Riley, who went along to help dig, we set out for the mountains.

We followed the road to Queen, which was a trial and a tribulation, even to the Ford, but we eventually arrived at the top, and surrounded by big pine trees we camped for the night at the Ranger Station at Carson's Seep. The following morning our objective was Gilson Canyon, another tributary of Last Chance Canyon. We took a roundabout way, going to the upper part of Dark Canyon first and then stopping on the way to get two horses to use in getting down into the canyons.

Gilson is a wild winding canyon with steep sides. We found no caves till we reached a sharp bend where there is a goat camp and where the old cowboy, whose name the canyon bears, lies buried in a solitary grave. There were a number of caves at this point, two hundred or more feet above the

bottom of the canyon, some quite large and one with a double-storied entrance. All, however, had been dug into. Several showed signs of water seepage, and since there was no evidence of occupation, we did not consider it worth while to do any excavation. We followed the canyon down to within a short distance of where it empties into "Last Chance." There were a number of large shelters beyond Gilson Camp, and on the walls of some of them were paintings. At one particularly narrow place in the canyon we found the remains of an ancient still, with a sign painted on the rocks warning federal officers to keep out.

A little discouraged at having gone into dozens of caves without finding any that we considered worth more than a hasty examination, we next decided to head for the country somewhat north of Last Chance Canyon, known as the "Three Forks" country, and which is the upper reaches of Rocky Arroyo. We followed the road which goes past the "H Bar Y" ranch to the point where the three forks come together and where there is a large cattle tank, approximately fifty miles by very bad roads from Carlsbad. From the cattle tank above mentioned, and less than half a mile up the left hand or south fork there is a sort of crescent-shaped flat place where the dry canyon bed takes a bend around some sharp spurs. Here in a north-easterly direction along the slope are several caves close together and on different levels.

The larger and upper cave [Plate XXVII, 1] attracted our attention, even though it had been previously dug into in a number of places. It was approximately seventy feet above the flat, with a high opening—some twenty-five feet, and it faced a little south of west. The roof was much weathered, especially near the entrance where large quantities of rock had fallen off, some of which took two of us to shove over the side. There is a double overhang, due no doubt to the harder limestone underneath eroding less easily than that forming the upper part nearer the entrance. At some fifteen or twenty feet in from the edge of the cave, the second overhang begins, and from here to the very rear of the cave the roof slopes back more gradually at a height of about three feet above the floor. The entrance at the second overhang was thirteen feet, seven inches wide.

The previous digging had been done on the right or easterly side of the cave, at least three fairly large holes having been dug and the dirt and rock piled up so that it extended over the whole surface of the floor. We decided to excavate the westerly side. The loose stones and large rocks near the entrance were first thrown out of the cave, and a shelf dug down to a more or less solid level from which we began a trench four or five feet wide following the left hand wall. We threw the dirt and stone out as we progressed back into the cave, setting up a screen at the entrance. Some of the holes further in the cave we filled up with the loose rock we took out.

The very fine dust was as thick as usual in caves of this type, and we all wore respirators.

Almost at once we began finding animal bones scattered through the dirt at various levels from fifteen to eighteen inches down to three feet, near the wall where pack-rats may have carried them down into some of the crevices. Mixed in at the same general levels, we found bits of cord, fragments of basket, two foreshafts, one apparently a spear foreshaft, and some pieces of gourds. There was no stratification; bones and other objects were mixed together in the undisturbed part of the cave floor that we excavated.

At a point twenty-two feet from the end of the second overhang, or some thirty-five to forty feet from the entrance, we uncovered two baskets, a larger one covering a smaller one. Both were lying quite close up against the side wall of the cave with a foot of dirt over them and six inches of loose rock, fallen from the roof, on top of this. The baskets appeared to have been forced up against the wall by the pressure of the rock and dirt at this point, the floor having a tendency to slope towards the wall. Unfortunately the centre of the top basket had been knocked in by the pressure and was sunken in about five inches below the rim. There was nothing in the lower basket but the dirt which had been forced in from the top and some whitish streaks mixed in with the dirt. There was evidence of a seepage of water, at one time or another, from the wall, so that it was difficult to judge whether this represented a completely disintegrated burial of an infant or not. The upper basket was approximately twenty-two and three quarters inches in diameter, while the lower one was twenty-one and one half inches. The rim of one, decorated with a mountain design, was in good enough condition to show that they were coiled baskets with a two-rod and bundle foundation, with seven coils and fourteen and one half stitches to the inch [Plate XXVIII, 4]. These baskets differed from some of the fragments found nearer the entrance, one piece having an alternating large and small twig foundation, four interlocking coils and nine stitches to the inch [Plate XXVIII, 2], while another fragment has a similar loose coil and a foundation composed of a number of small twigs [Plate XXVIII, 3].

Of the other things recovered, a spear foreshaft lends evidence of a Basket-Maker culture [Plate XXX, 5]. This foreshaft is five and one half inches long with a notched end. The other foreshaft recovered is seven inches long, with a shoulder at one end and pointed at the other [Plate XXX, 1]. Only one bone awl was found, made of deer leg [Plate XXXI, 4]. Bits of cord and reed were also removed, and, in the very rear of the cave, two sandals were found, one fourteen inches under the surface and the other a little above that depth. Both are made of wickerwork and have pointed heels and toes similar to the one found on the other side of the Guadalupe and

already described. The smaller one is six and one half inches long and the larger one seven inches [Plate XXXV, 3].

The animal and bird bones recovered from this cave consist of Bison, Horse, Antelope, and California Condor, the latter identified by Dr. A. Wetmore of the National Museum. Dr. Malcolm R. Thorpe, of the Peabody Museum, Yale University, very kindly made the identifications of the animals for me, and I take this opportunity to acknowledge my thanks. The bison has been identified as probably *Bison alleni* (Marsh), but since none of the horn was recovered, this identification cannot be made certain. Plate XXXII, 2, shows the teeth and a hoof of an adult horse, identified as *Equus complicatus* (Leidy), while Plate XXXIII, 1, represents a young horse of the same species, both more specifically identified as *Equus fraternus*. The vertebra of the smaller horse was found lying alongside the upper basket found in this cave. Plate XXXIII, 2, shows the leg bones, teeth, and horn core of *Tetrameryx shuleri* (Lull). It does not hold, however, that the baskets and other such objects recovered are necessarily of the same age as the bones, which have been identified as Pleistocene, though they were found at the same or even higher levels in the same cave. It is hard to say how these bones got into this cave; there is no evidence that they were carried there by human hands. It is, of course, a possibility that these particular animals lived longer, for some reason or other, in this locality, than paleontologists now believe. In any case, the bones of *Tetrameryx* are interesting in themselves on account of the fact that they are rare.

Looking like coal-passers, we finished our work here after several days, and, after a bath in some puddles, we returned to Carlsbad to replenish our supplies. The next cave investigated was the one in Anderson Canyon [Plate XXXVI, 1] where we had previously found a sandal toe, and to which we now returned to do some excavating. The road to this canyon leads off to the left at the fork in Last Chance Canyon, the right hand fork going to Sitting Bull Falls. As soon as we came within sight of the canyon we stopped, and from there followed up the canyon to the gate marking the boundry of the National Forest Reserve. The cave is about a mile up the canyon from this point, on the right hand side, and some forty or fifty feet up the wall.

Covered in front by cactus plants and a large ocotilla, or candlebush, the entrance to the cave is hard to see from below. The bed of the canyon at this place is formed of large blocks of limestone, tilted in such a way that you get the impression the canyon runs in the opposite direction to that in which it actually does. Rain-water collects in natural depressions in the rocks. The entrance to the cave faces southeast, and is slightly over twelve feet wide from the point of the southwest corner to the northeast corner. Six or seven feet in from the lower edges of the entrance is a natural pillar which divides the entrance, the left hand side being partly blocked with

loose stone. The right hand side, at the edge of the pillar is fifty-three inches high, and the roof slopes down towards the back rather sharply, so that, at a distance of about thirty-five feet from the entrance it is necessary to stoop and then crawl to reach the back of the cave, which goes back another forty or fifty feet. From the point some thirty-five feet in from the entrance the walls also narrow and form a sort of tunnel four or five feet wide, extending to the rear of the cave.

The roof showed evidence of smoke. The floor had been very little disturbed by any previous digging and this gave us some hope of finding some interesting material. As already mentioned, when we had visited this site before, we had dug up a toe of a sandal, near the back of the cave. We had also picked up an arrow foreshaft [Plate XXX, 4] lying on the surface of the floor, back of the pillar which divides the entrance.

We began our excavation along the right, or northeast wall, first, throwing over the edge of the cave the loose rock which had weathered from the roof and was partly blocking the entrance. A shelf was made near the front and we then began a trench about three feet wide, following the wall back, and rigged up a sort of sled from a box we had brought along, in which we put the dirt and dragged it out to the entrance where we screened it before throwing it over the side. The work was very fatiguing, as it was necessary to sit in cramped positions to dig, or even to lie down where the roof sloped near the tunnel at the back, and the dust was particularly thick, so thick at times that our lights could hardly penetrate the clouds suspended in the air.

Two distinct layers of fibre showed up, separated by dirt and, in some places by ashes, to a thickness of nearly four inches. The surface had been practically undisturbed; only a few small holes had been dug here and there, mostly along the right hand wall. There was approximately six inches of loose rock and dirt followed by two or two and a half inches of matted fibre, which was hard to dig out. Then came a layer of three and a half to four inches of ashes and dirt mixed together, followed by a second fibre level of about the same thickness as the first one, under which was undisturbed dirt continuing down to the rock floor.

Not far in the cave we began to find bits of cord (see Plate XXIX, 2, for cord made of very tough fibre), fragments of baskets, matting and sandals, mostly at the level of the second fibre layer—fourteen to eighteen inches under the surface. The sandals are rather interesting types. None of them are exactly like those recovered from the other caves described. One type [Plate XXXIV, 1] is made of whole yucca leaves, and is very similar to that type described by Kidder and Guernsey in Bulletin 65 of the Bureau of American Ethnology, except that it appears to be made in the opposite direction. In other words, in the type which Kidder and Guernsey call Type I of a Basket-Maker sandal, the small ends of the warp are brought to

the heel where they are tied in a triple knot, whereas in the type shown in Plate XXXIV the small ends of the warp are brought to the toe and tied, and the ends at the heel protrude. There is also the difference that the warp and the weft both are made up of a number of small whole yucca leaves, instead of one. The sandal shown in Plate XXXIV, 2, is similar but the warps are drawn a little closer together at the heel and do not protrude so far. The larger ends of the weft leaves are shredded out on the under side of the sandal to form a sort of pad. The type shown in Plate XXXIV, 3, is also made of wickerwork, but on a two-strand warp instead of four like the other two examples reproduced on this plate; the toe and the heel are both more rounded. The sizes are: (1) six and a half inches long, including the fringe which protrudes about one and a half inches; the sandal is three inches wide at the widest point; (2) eight and a half inches long; not quite four inches at the widest point; (3) eight inches long and a trifle less than four inches wide. This last type seems to conform quite closely to the Cliff-Dweller type of sandal described by Kidder and Guernsey as Type I, b.

Plate XXXV, 1 and 2, shows two rather interesting types found in this same cave in Anderson Canyon. One is a small sandal for a child, and is only five inches long and less than three wide. The two warp elements are crossed over each other at the heel and protrude to form a sort of "fish-tail," each, however, are made up of several leaves. The leaves forming the weft are woven back and forth once over the warp, the ends coming out at the bottom being cut off close where they emerge, while those coming out on top extend across the width of the sandal.

The sandal shown in Plate XXXV, 2, is a modified form of the type just described. It is composed of leaves of the yucca or similar plant, partly pounded to make them softer. The warp is formed of a number of leaves bunched together and forming an oval, giving two warp elements. The ends at the heel are crossed and extend in the same sort of "fish-tail" just described. An additional feature is that the weft leaves just above the "tail" are shredded and tied over the toe onto the tie-knot, forming a part of this latter and giving the sandal the appearance of those slippers for ladies called "mules." The sandal proper is only five inches long, the "fish-tail" extending two inches beyond. It is four inches wide across the middle, and would appear to have been designed to cover only the ball of the foot.

Some pieces of matting were recovered from the cave also. These are shown in Plate XXVIII, 5 and 8, and in Plate XXXVI, 2, the former being twilled work, while that in Plate XXXVI is straight weaving. The method of forming the selvage is clearly shown in the plate.

There were some basket fragments from this cave similar to those described from one of the other caves, and there were a number of knots of

yucca leaves, either parts of sandal ties or binders for tying up splints and twigs for use in making baskets. One stone tool was found here, shown in Plate XXXI, 8. In this same plate, 1, 2, and 3 are points picked up on the flats along Dark and Anderson Canyons.

Beside the caves in this region there are numerous shelters. We found a great many of these in Last Chance Canyon. In front of most of them, or near by, there are round pits formed of small loose rocks which have the appearance of having been burned. Locally these pits are called "mescal pits," supposedly having been used to cook mescal. These pits are found in all the canyons we went into on the east side of the Guadalupe. They are also found within a short distance of the caves we visited, sometimes in front of the entrance to the cave, where the canyon wall is not too steep, and sometimes below the cave on a flat place in the canyon. These pits vary in size, the largest we saw measuring about twenty-five feet in diameter. We dug into only one of these, finding a few animal bones and teeth and some sherds of a yellowish-gray color. In a few cases these pits were built as part of the shelters, the back part of the shelter forming one of the sides. In only one cave was anything like this sort of pit found, and that was in the large cave on Mr. Williams's land on the west side of the mountains.

By way of a summary, it might be said that the work of the past summer covered the investigation of a great many caves in the canyons, along the southwestern and eastern slopes of the Guadalupe Mountains, in Eddy County, New Mexico, and Culberson County, Texas. Three of these caves were partially excavated, two of them having been disturbed previously, and the third in Anderson Canyon on the east side showing only slight disturbance previous to our arrival. The other cave on the east side is in what is known, in the "Three Forks" country, as the south fork. The cave on the southwest side excavated is on land owned by Mr. J. A. Williams, of Ables, Texas.

The material recovered from the caves we worked in consists of baskets, fragments of baskets, several types of sandals, pieces of twined, woven bag and matting, a few spear and arrow foreshafts, bone awls, bits of cord and netting, corn cobs, wooden wedges and other wooden objects, a few sherds of undecorated grayish-black pottery, and a number of animal bones, identified as Pleistocene bison, horse and a rather rare antelope, *Tetrameryx shuleri*, besides the bones of some bird similar to that of a large stork. A few human bones were recovered as well.

Certain of the material from these caves resembles very closely specimens of Basket-Maker culture from other parts of the Southwest, notably the fragment of twined, woven bag and spear foreshafts, while other objects found are different. Some types of sandals, though somewhat similar to certain types of Basket-Maker sandals figured by Guernsey and Kidder, are yet enough

unlike them to make them different. Certain other types of sandal appear to be very like some types shown in the Peabody Museum, Cambridge, Massachusetts, and said to be from Coahuila, Mexico.

For the present it seems unwise to try to attempt to arrive at any definite conclusion as to just where the culture of this area fits into the general picture. We can only present the evidence as we have found it in the hope that it will add in some small way to the mass of evidence, which is bound to accumulate as time goes on, and, in this way, aid in arriving at a definite conclusion as to what the culture of this region represents.

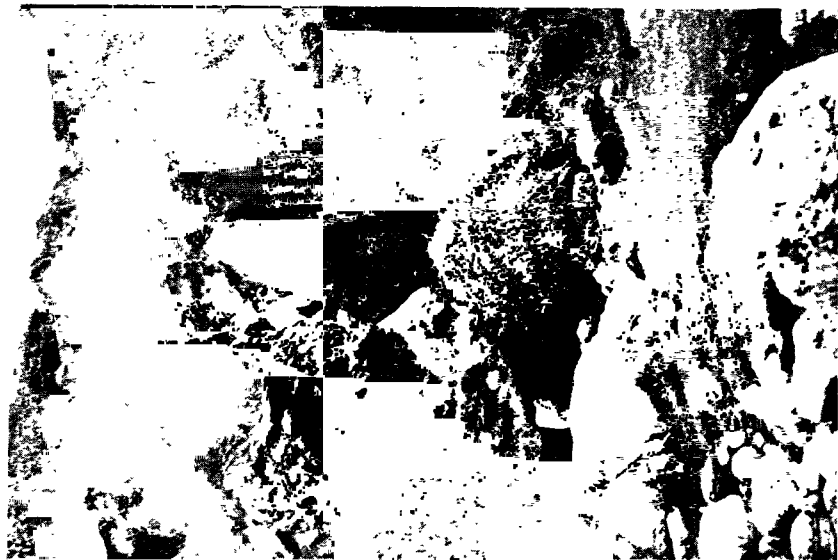


FIGURE 2

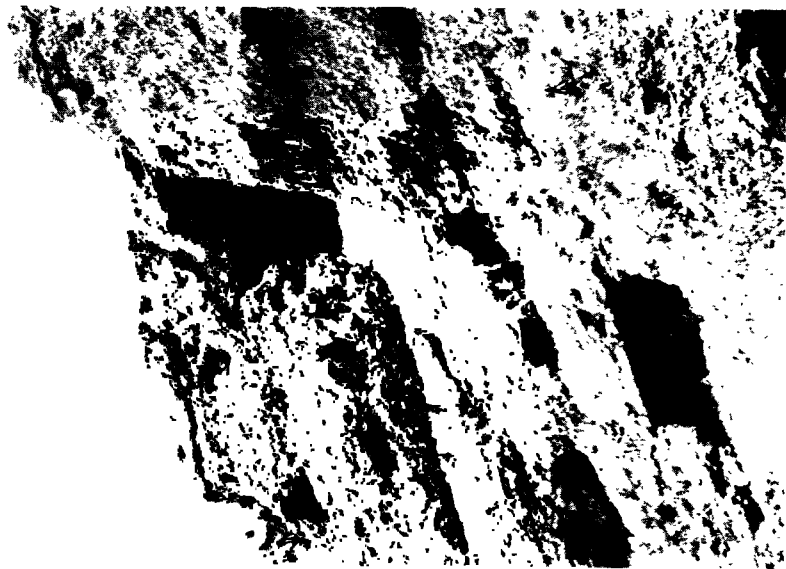


FIGURE 1

PLATE XXV. H. -HOWARD: Research in the Guadalupe Mountains.

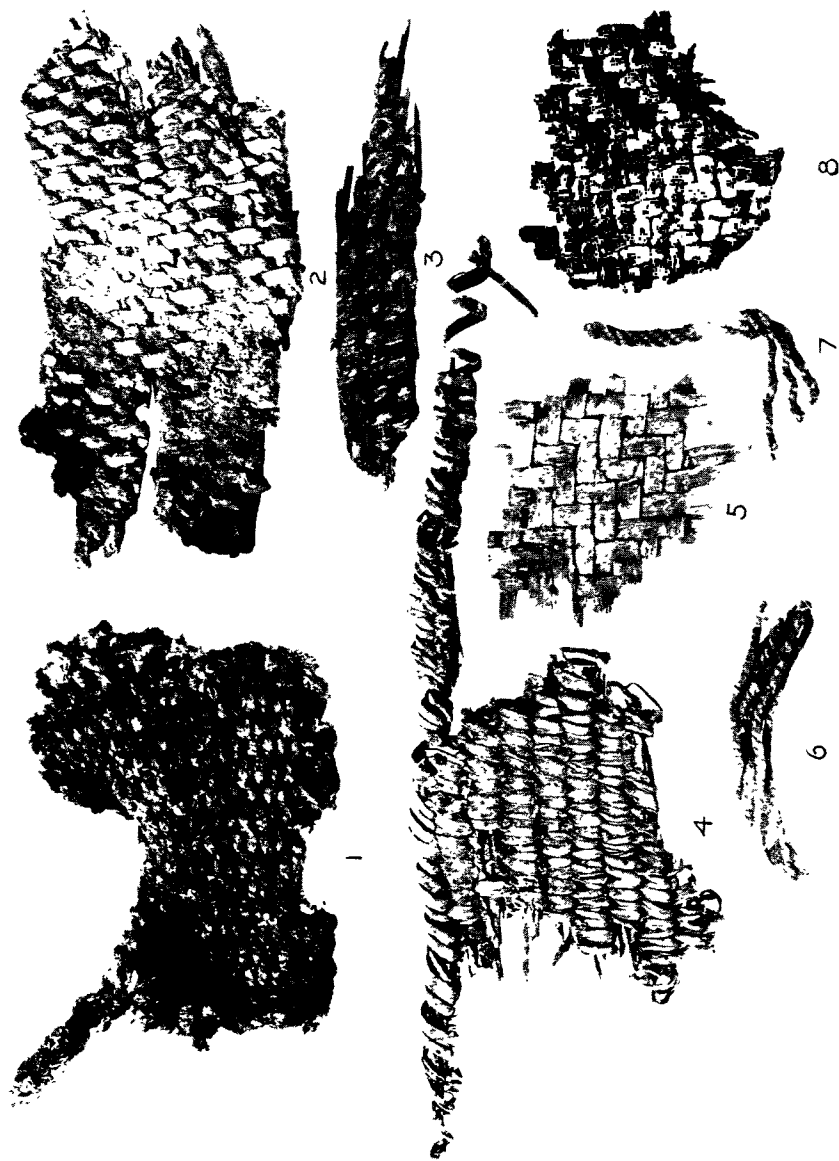


PLATE XXVIII.—HOWARD: Research in the Guadalupe Mountains

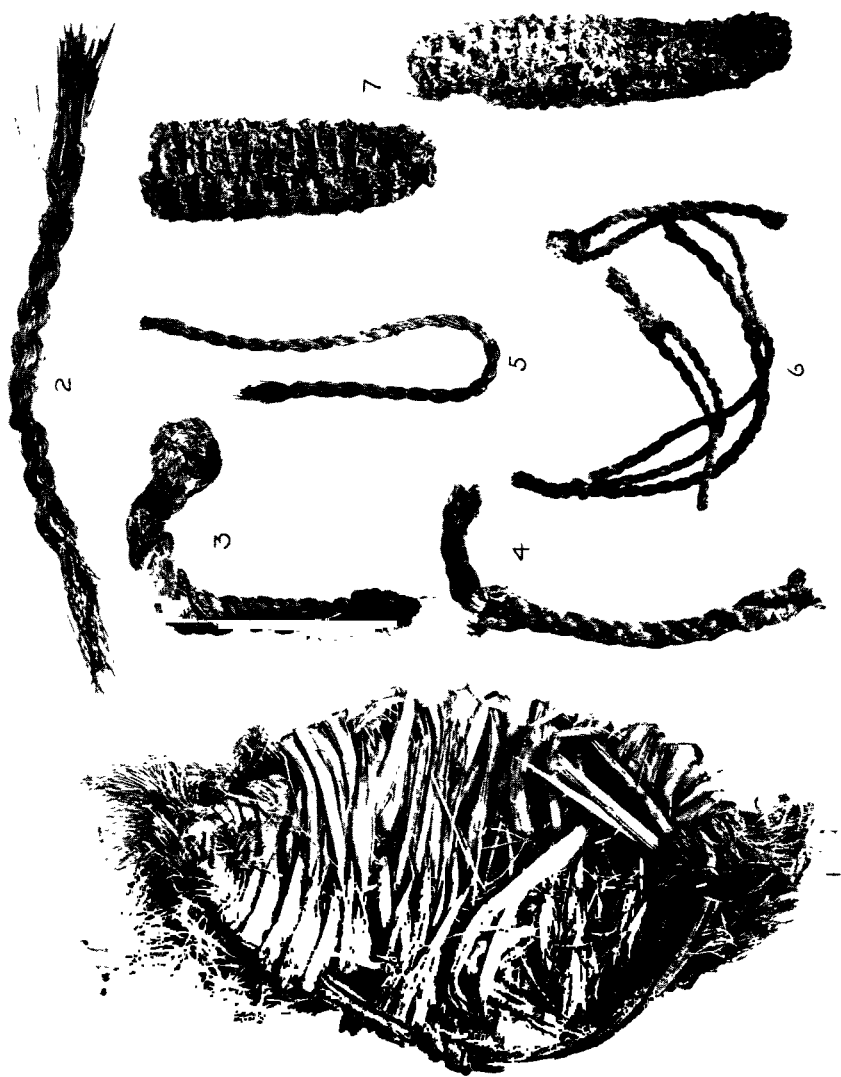


PLATE XXIX. How and; Research in the Guadalupe Mountains.

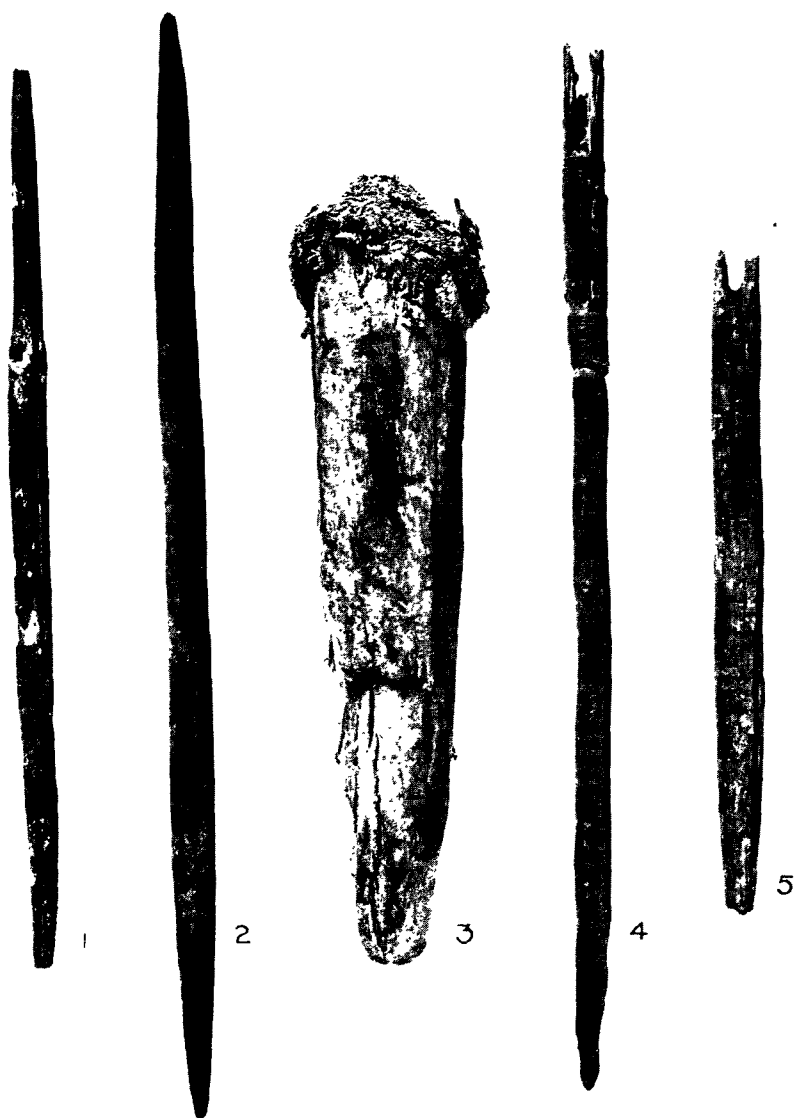


PLATE XXX — HOWARD — Research in the Guadalupe Mountains

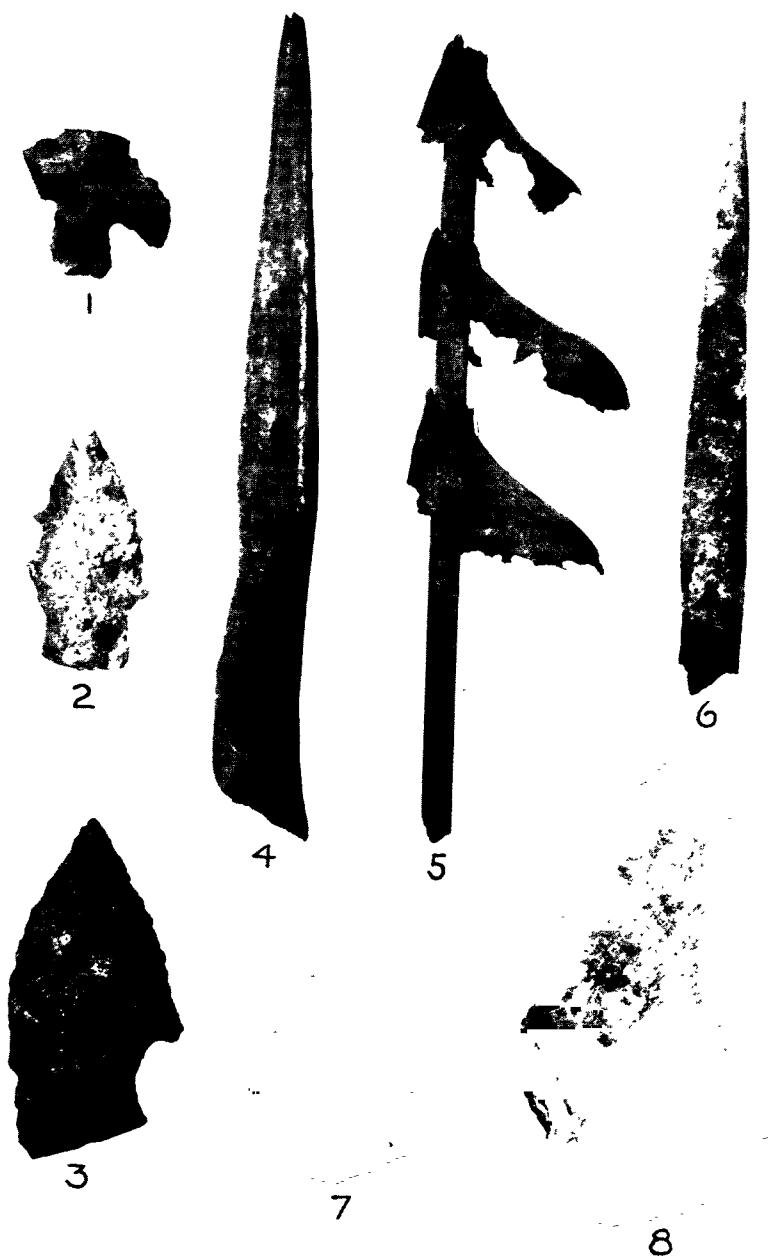


PLATE XXXI.- HOWARD: Research in the Guadalupe Mountains.



FIGURE 1

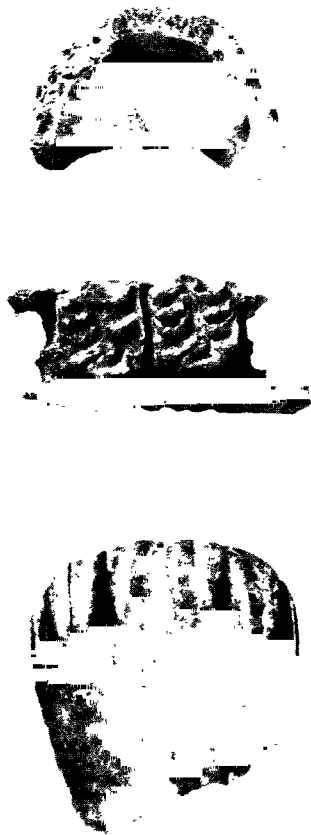


FIGURE 2

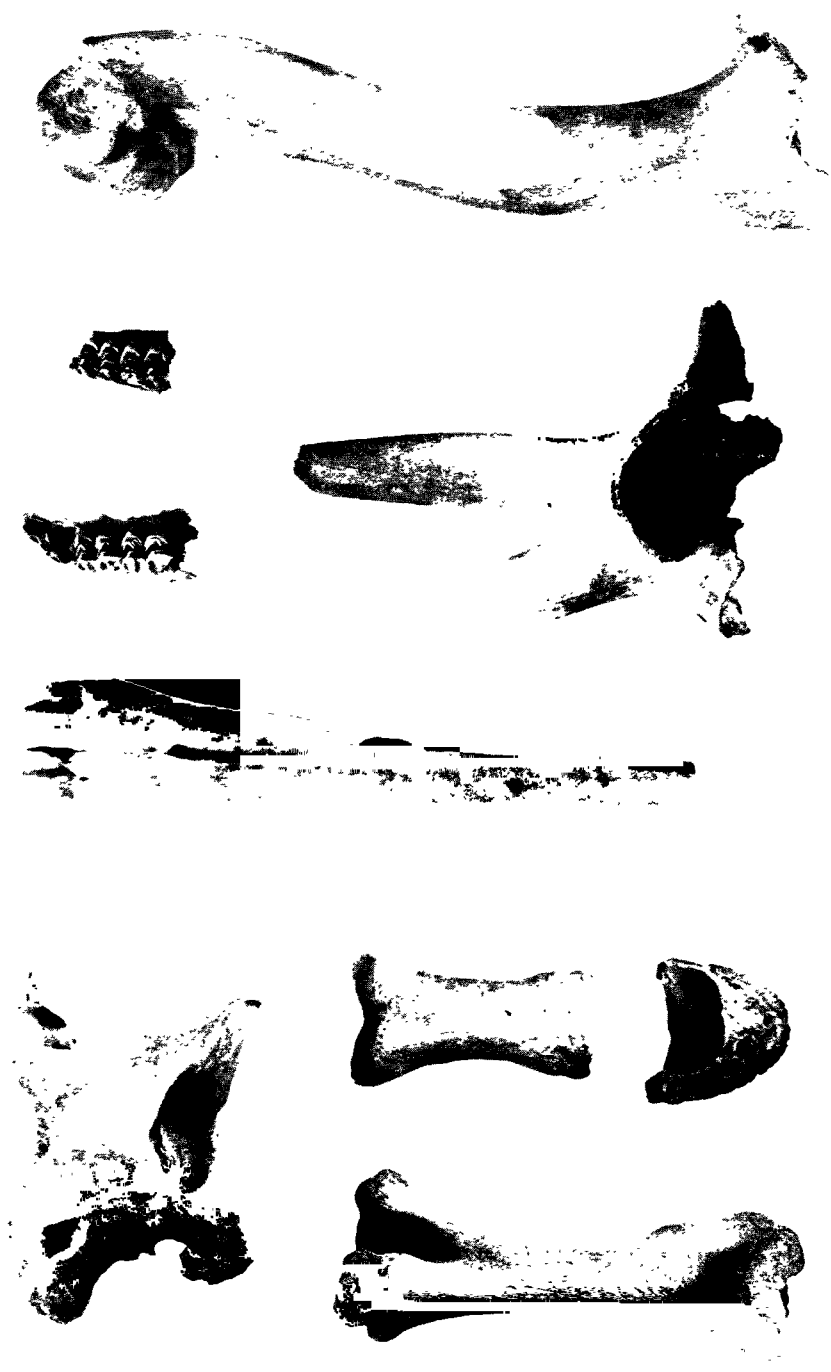


FIGURE 2

FIGURE 1
 PLATE XXXIII. HOWARD. Research in the Guadalupe Mountains.

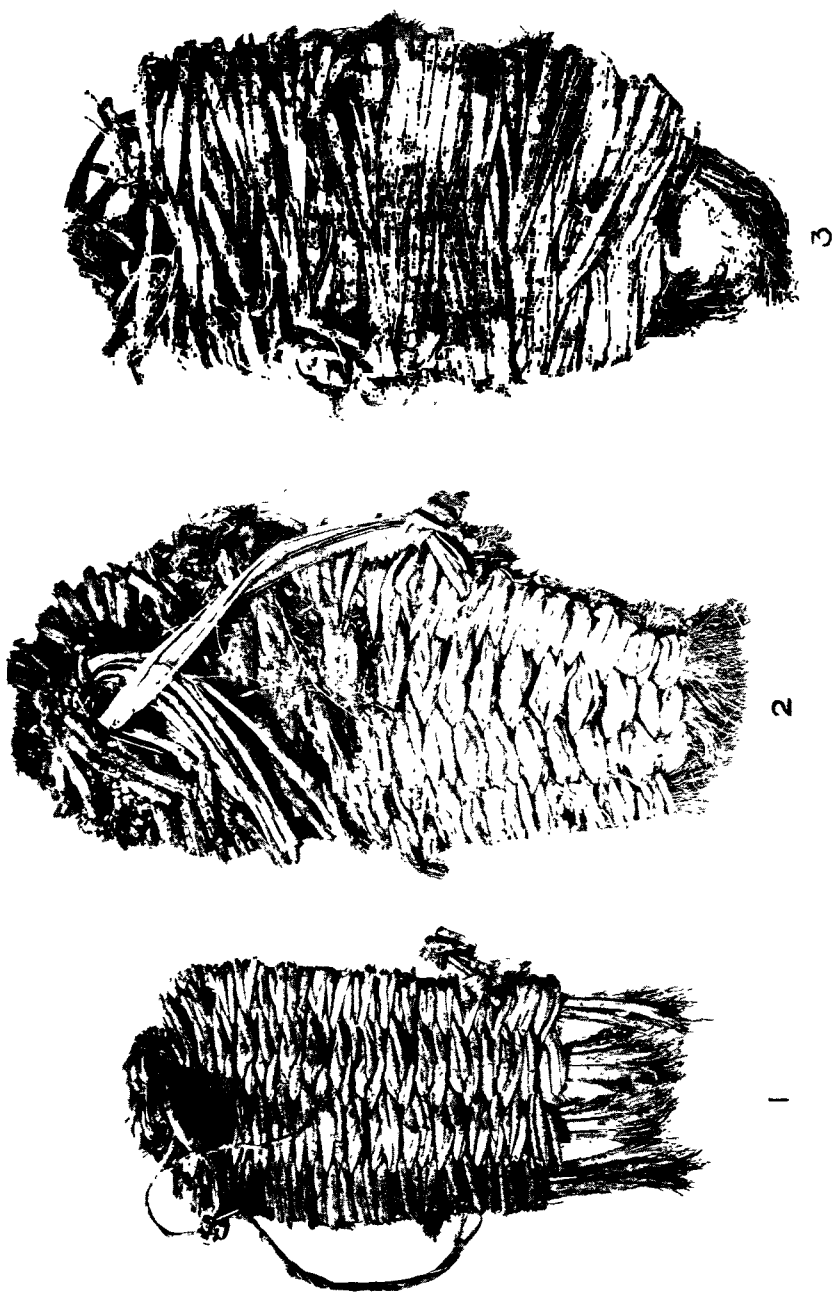


PLATE XXXIV. HOWARD: Research in the Guadalupe Mountains.



PLATE XXXV.—How vud: Research in the Guadalupe Mountains.



FIGURE 1

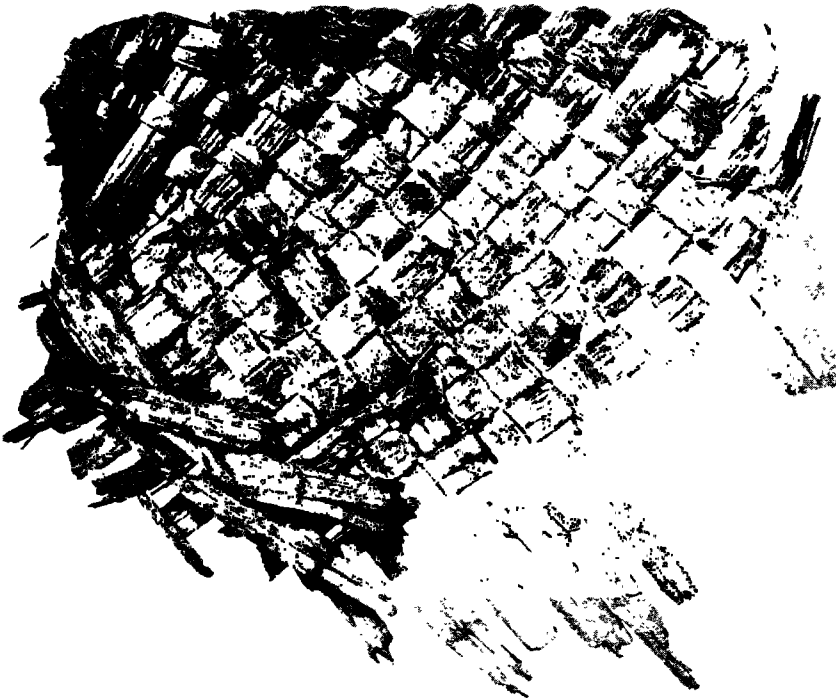


FIGURE 2



FIGURE 1



FIGURE 2

HOW ATS-HA FOLLOWED THE HIDE OF HIS COMRADE TO YEK LAND

BY LOUIS SHOTRIDGE

YEK is a Tlingit term for the in-dwelling spirits of the elements—the earth, the air, the water, the frost and heat. Originally the yek were the servants of the gods that controlled the majestic forces of nature. In time a belief was born that spirits pervaded all creation and that every creature possessed a soul in some degree, the animals of the forest and sea, the birds of the air, and the trees, but for a time these were only secondary in character. The yek of elements communicated with our world through a medium called ehets, a mediator whom some writers called “shaman.”

There were evil spirits as well as good spirits, and all yek contested for the favor of man. The importance of the spirits, as they appeared in his vision, were in accordance with the quality of the ehets, that is to say, if he proved to be true and infallible while on an important mission, he became a medium for more important spirits, and through him their wishes were made known to man. The power of his vision into the future was in proportion to the number of the spirits. It was considered a fortunate division when each moiety had its own ehets, because such a division was thus in time of war strengthened in its spiritual guidance by the combined powers.

The life of an ehets was not a safe and comfortable one. He was destined to suffering and sacrifice; he must always be on guard not only against an attack from an evil spirit, but there was much danger from a successful rival as well. A desire to weaken a rival party in war and to prevent the development of its spiritual power incited mediums of various geographical divisions to be constantly at spiritual war, and it was only by the protection of the experienced and friendly ones that a young ehets survived and was allowed to live in the presence of such a malicious attitude. The safety of the ehets depended much on his virtue, and chastity was most important in his private life. All good spirits were pure and free from all worldly emotions, therefore their medium must also be pure and true. So, with a true ehets it was not just the law of man which prohibited worldly intercourse when preparing for an important mission. There was nothing in all that young ehets's life which created a more powerful temptation than the immediate presence of a young woman, hence all efforts were exercised to prevent a chance meeting.

For all his sufferings the ehets had never received pay, and the only compensation was in the nature of honorable functions, but when the idea of

barter and profit was introduced among the people, and the valuable fees for treating the sick began to be demanded, the ensuing greed for profit led to many demoralizing practices. There came a time when the idea of inheriting the healing powers of the ehēt was born, an idea advocated by ostentatious men who were wont to change their faith. Thus, to this day such ambitious persons follow whatever faith they think most adapted to win admiration and praise. Although some made it their profession to predict, and show the art of healing in a convincing manner, it was thought, by the better class of the people, unsafe to take such a practitioner as infallible, and a novice was never known to be successful, because a position such as that of a true ehēt was not hereditary—a true prophet was destined to be born only for such a purpose.

From what has been told about the part which he had to play, it may be seen that the life of a true ehēt must have been a hard one, hence in earlier times the position was not generally coveted. In a number of instances a modest family had been known to conceal the condition of a new-born infant who had shown the familiar signs of a born ehēt, and often it was in despair that a youth was given up to the seemingly inhuman existence.

It is not my purpose to offer a study of the spiritual concepts of the Tlingit nation. I am writing a very brief outline of the part which the ehēt played in the life of the people merely as an introduction to Yetl Sha-da, the name of an old ceremonial head-piece which is now part of the Museum collection of Tlingit art, an object which for many years has borne witness to the account of its creation.

Yetl Sha-da, which means "Raven Head-cover," represents not only the tradition of the early life of the Tlingit people in Alaska, but in a modest manner it shows us the earliest type of the art in quill embroidery as well. Sha-da, or "Head-cover," is a term for the ceremonial head-dress of the ehēt. It is a head-piece shaped something like the bottom half of an empty meal sack. This type of head-dress was popular among the ehēt throughout the region. The older ones were formed of hide, or skins of animals, and there were a few of basketry and woven wool. The old piece which the Museum now has assumes no claim to the honor of being the original "Sha-da," but from the account of its creation it is clear that it is not a copy.

The foundation of the specimen is formed of maple bark, and pasted over this is a layer of finely tanned skin, covered with the colored quills of the porcupine. The colors are natural white, now become yellow with age, dark brown, and anisole red. The embroidery is the work of a Tlingit woman, but the work as a whole can be classified as Athapascan. Although there were Tlingit women who have executed the quill-work in excellent style, it was always to the women of the Guna-na or "Alien-nation" that full credit was given for the creation of the art.

There is no one now living who can tell with accuracy the meaning of the design shown on the old head-dress, and the last owner offered no more information than that the sha-da represented, by its feminine nature, more virtue. One informant, however, conjectured that the birds shown, two on either side of the head-dress, may have been that Heron who was the father of the great Raven, while another thought them to be mating loons, but Chief Silver-Eye, whose version of the story about the head-dress is given in the following pages, stated that the birds were those which appeared in the vision of Ats-ha when the ehets journeyed in yek world. This appears to be a more likely conjecture.

Like other important objects of the aboriginal life of the north land, the Yetl Sha-da has its own story to tell to one who wishes to hear. It seems that throughout its existence the thing has never had a chance to show its quality, and in the presence of the majestic attitude of objects of more eminent origin the old piece lay in silence and was retained only because of the sentiment of its owners.

I was a boy of about twelve years of age when I first listened to the story of Ats-ha. Since then I have heard different elders tell it, but the stories by parties not directly concerned usually were in the nature of entertainment, void of detail, starting with the part which the narrator felt to be most interesting, and told with a "believe it or not" attitude. In truth, to the ordinary listener, aside from the amusing part of it, the story is not altogether convincing, but the Tlukah-adi, the clan whose early history is involved with the Yetl Sha-da, have a different feeling about the part which the old piece plays, and the tale as told by the elders of that clan is a more dramatic one. Of the different versions the following, as given by Chief Silver-Eye, offers a rendition which is perhaps more general.

Ats-ha was the first ehets of the Kuek-adi clan, and at the same time Duckde-yadugakt also grew to be an ehets among the Newushaka-ayi. Since they had everything in common, it was a natural thing for these two men, who were members of the two sub-clans of the Tlukah-adi, to become intimate friends. Both men were young and both were said to have been handsome. The youthful spirit in them often led them to do mischief, displaying a carelessness which worried the party of old disciples who had them in charge a great deal. At that time no young man entertained a desire to be an ehets. It was a hard and restless kind of life, and the two young men did not cherish the idea of being restricted by wearisome taboos. Imbued with this indifferent attitude, they became more careless and sought the very pleasure which was forbidden them. Finally it was carelessness on his own part, and excessive jesting on the part of his friend that caused Duckde-yadugakt to lose his life, thus depriving his clan, early in its history, of spiritual guidance.

The early settlement of the Kuek-adi party, which eventually became a

part of the Tlukah-adi clan, was Chilkoot, which is located at the head of Lynn Canal. It was the habit of this community to resort to Ton-ani, a spring camp located only a half day's easy paddling south of the winter home. There is no salmon stream nor other source of any important product of the season at this beautiful and sunny resort, and it seemed that the families came here for no other purpose than to get away from their winter quarters in Chilkoot, where the sun shines only for a part of the day, and to sun themselves while gazing upon the horizon and looking out for the first leap of the spring salmon. Those Kuek-adi men, from the very beginning, got the reputation for indolence. They were an easy-going sort always looking for undeserved comfort and ease. It is no wonder that their young had too much time on their hands in which to do mischief. It was from Ton-ani that Ats-ha went forth and followed the hide of his comrade into yek land.

Some unseen power was at work when Duckde-yadugakt came to visit his friend at Ton-ani. It may have been advice and protection that brought the youthful ehēt to Ton-ani, but none the less certain it is that his friend Ats-ha was young and reckless. It is clear that the young visitor felt the presence of some danger and felt very much unsettled by it. Their meeting was that of two young friends who had much in common, but who did not know the proper thing to say.

"It is good to see you my friend," said Ats-ha, greeting his visitor. "And how does the Dweller-of-Mount-Kaka-hon treat you these peaceful days; is not he a yek of piquant nature, though? He would be steadfast with one only when one maintains one's true faith. I think it was because of some treachery that this potent yek deserted Kide, during the earlier days of the great ehēt, and since then the good yek has been suspicious of us beginners."

"Ha, true faith . . . No, my friend, I feel that I have not been true, and that my fate now lies heavy upon my head. The gods only know how I longed to be anything but an ehēt, and I guess that I have done all that I thought would displease them. Look at my chest and see— I even have gone so far as to smear my body with paint mixed with ashes— but the yek will be steadfast until the gods mete out their punishment. I know I am courting death, but that I would willingly undergo rather than to do things halfway and so disappoint my party. And now some old watchful yek is about to slay my tutelary, and thence, I suppose, back to the land of souls I go. But, good comrade, I am here with you now to escape, if only for a brief moment, the thought of being a damned novice."

For a moment a puzzled look appeared on Ats-ha's face. Then he spoke and said: "But, my lad, truly you have not yielded to the temptation of a virile emotion . . . No? Why then this peevish notion? Come now, shake off the gloom. If old Ke-yid has any cause for malice let him eat his own fire."

Ha, this young ehets underestimated the power of a rival yek, and it was a dangerous thing to do because such reckless attitude would only add more to a feeling of rivalry.

At that time a yek whose name was Ke-yid, a yek of the foulest antecedents, lurked with his associates from the southern terminus of the world about the north land with evil design. It had been generally felt that the master of this evil yek was never on friendly terms with the northern people, and was determined to prevent, at all risk, the development of spiritual power among them. So while Ke-yid was at work, a young careless ehets in Chilkoot had no better chance to survive and live than a fool young rabbit would have had in the presence of a hungry hawk.

In an attempt to entertain him, Ats-ha led his visitor about among some friends. There were young women who were not trained to avoid becoming the cause of the downfall of a good man, and when the two handsome youths came along they did not know enough to discourage the development of a passionate feeling. At first Duckde-yadugakt hesitated and showed some signs of fear in their association with the women. The new moon was then visible in the heaven and he knew that the spirits were about to enforce the laws of nature. This was the period when a true ehets took his qualmish drink to rid his system of all foul matter. He must refrain from everything in the nature of virility. But it is a bad habit of women of a coquettish nature to force themselves upon the way of one who tries to avoid them.

When Ats-ha noticed that his guest was not enjoying that which he regarded as a harmless amusement, he said one day to his friend: "What sort of an imp has now taken possession of your mind, my friend, to make you appear, in presence of the fair maidens, like one who is guilty of a crime? Come, rouse your spirit of mirth and let us laugh and offer our hearts to the good goddess of Joy, for ere long these old hearts shall be weary of passions."

The youthful ehets, still hesitating, answered and said: "But, good comrade, are you not aware that the period of our abstinence is now at hand, and do you not think that by such folly we might rouse the wrath of the gods?"

"Ha, such fret. Perhaps I might have known better, but only last night I was bold enough to take the thrill in satisfying my virile desire and naught has happened to my skin."

Now Ats-ha said all this only as a jest because he trusted his friend. Being older and having had more experience in life he felt he had the privilege of saying what he pleased, but little did he suspect that such a jest was to play havoc with their young lives.

During the days that followed Ats-ha noticed a profound change in the attitude of his friend, and this worried him. He was still trying to think of some means of correcting something that could not be unsaid, when what he had feared happened. One night he was awakened by his friend crawling in

to bed. With a start he asked, "Ah, my friend, I thought ere long you were slumbering, but where have you wandered at this time of the night?"

"Dya, good comrade, do not say more, for my old heart is now pounding at my throat. But if you must know, I have just now pulled my person free from the arms of the fairest one in all Chilkoot."

Maybe Ats-ha thought that the youth was returning him his own manner of jesting; therefore he was not alarmed. Then, "Take care, lad," he said, "for the gods might be moved to transform you to an owl," and made a turn to doze off again into dream land. He thought he had taken only a "porpoise sleep" (or short nap) when again he was awakened by the moaning of his friend . . . "Now, what has happened?" He sensed instantly that the cause of this was serious. The youth did not talk, but with great effort was trying to conceal his condition. From the manner of his breathing the older man knew also that the youth was stricken by *shanusti*, a type of pneumonia. He then understood—the youth had not been virtuous. Ats-ha did everything that was within his power to save his friend; he invoked his most potent yek, but no good yek could be induced to come to the rescue of one who had betrayed their trust. Within two day-lights the young ehets died. Ke-yid had accomplished his purpose.

There was no doubt about Duckde-yadugaht being sent to our world to act as a medium of the gods, but that did not mean he was born with the ghost of a powerful yek to protect him. No, like all others he was supposed to have acquired his spiritual power by means of his private virtue. And the few primary spirits that possessed him did not have a sufficient amount of power to defend the young ehets when a treacherous rival yek menaced him with instant death. Thus, it was covetousness that at last caused Duckde-yadugakt to pay the penalty with his life, even before he ever acquired the ability of an average ehets. Ats-ha knew the guilty party, but he had to admit that the death of his beloved friend was morally justified.

The death-house was put up on a promontory, and therein the remains of the youthful ehets were laid away. It was the custom of an ehets to go to the death-house of a departed comrade in an effort to take over the yek that had been deprived of their master. Ats-ha came then not only for this purpose, but to keep vigil over the body of his friend while it was still warm. Giving himself up wholly to grief, the ehets took his post. He did not lay himself next to the corpse as an ehets usually does, but took his position as one on guard. His reason for this may have been in expectation of what was to follow.

The third day of Ats-ha's fast was ended, and the night was silent. He was sitting up with his back against the corner-post of the death-house, thinking about his departed comrade. They had been inseparable; they had connived in everything; theirs was a type of true friendship founded in early youth, which had been the essence of comradeship; but now, there lay his

comrade, and never was he to see him again in this world. He was now sad, now enraged—sad in feeling the loss of his friend, and enraged by the thought that it had been a rival power which brought about this source of grief. He had been faithful in all that was required of him as an ehets, yet he did not know how vengeance could be realized. While he was in this diffident mood there lurked in him a feeling, a sense of the presence of some danger. It had been a long and melancholy vigil, but now this new feeling brought with it something of the thrill which a hunter feels at the approach of a beast of prey. And of this Ats-ha told:

“The Great Bear was then making a turn toward dawn, and I was already awake when there came to me the sound of the swishing of water. It was a sound heard when a monster bear rises from a pool of water, and I could even hear the water dripping from its great fur coat. I wondered what monster this might be. Peering into the gloom, I saw on the water a shadow moving shore-ward. It was the shadow of a canoe, but the canoe itself was nowhere to be seen. I thought that my eyesight was deceiving me, and I closed them by putting my face in the fold of my arms, and after thus resting my eyes I looked again. By this time the shadow was at the landing, as if it were afloat. At last there came a voice:

“ ‘Ha, behold my dead-fall, it has been shaken down. Go thither and see what is in it.’

“There before me was a vague outline of a huge man, a shade darker than the color of the night. For a moment the gigantic figure stood still; another appeared beside this, and then the two came forward. It was too late for me to make a shift and change my position, and I had to remain in full view. When they came near one of these sinister figures was within two arms-length of me, and I had braced myself to meet his spring before I realized that they had no idea of my presence. They then stole on to the top of the structure and almost noiselessly started to move aside the plank roofing. Presently one of them cried out and said: ‘He lies under your dead-fall, master, dead.’ Then still another figure appeared. This third figure evidently was the master. I knew by then that these beings were not of our world, but denizens of the unseen world. When the master-shadow came upon the scene he mumbled as if to himself:

“ ‘Ha, a lean young one. It is a grief to Keyid to be forced to do away with such a helpless thing, but who knows but that such a harmless stripling might have grown to annoy one’s peace of mind; no, I should never allow a spark to glow where there is too much dry grass. Mind you comrades, the Salvation-of-man (a rival yek), chaffed me when the sources of contentment seemed to have been secured in his pouch, so he should not grudge me a little pomp and ceremony now. Gook (proceed), men, make haste and remove the hide, for ere long the dawn shall be upon us.’

" 'So,' I said to myself, 'this is Keyid, the antagonist of all the benevolent yek.' There followed the sounds of rolling and pulling directly over my head. I could still feel the foul presence of this evil Keyid, but mind you, if I had knocked his brain out, as it had always been in my heart to do, this evil one would have had no more than his due from my hands. But at that moment such a good deed never occurred to me. I seemed to have wandered away from my reasoning power, and it seemed too that my own yek of war was no match for the great Keyid at that moment.

"From all that I could hear I knew that progress was being made in the skinning of the corpse, the intention of these night visitors. At last the skinning must have come to the head part. This was indicated by their huing, 'Hu, hu, hu, hu,' and upon the fourth pull it was evident that the sinister operation had been accomplished.

"They then carried the hide down to the landing, and the burden, in a mysterious manner, gravitated. It began to settle earthward, and the stout pole over which it hung snapped as if it were a twig. The yek of benevolence made their presence known for the moment. It was obvious then that Keyid was uneasy. He did not know what to grasp, but this was only for a brief moment. Another stout pole was brought, and the gigantic figures made a lift, and the pole which was the size of a large man's arm bent and sagged like an infant's hammock. But this pressure also was only for a brief moment, for the heft was no longer in evidence. I rose and went forward to follow the hide of my comrade. Following, I went ashore and, to my surprise, at the moment I lifted foot on land, the yek that had at first appeared like shadows became visible. I took my position immediately behind the master-yek who was seated in mid-canoe. I thought it was stupid of them not to see me.

"The men appeared stern and silent. I knew not what monster I was about to encounter in this strange world, but with the thrill of adventure in my heart, fear never occurred to me. Before the raven cawed, the canoe of the yek slipped forward into the unknown, and only foam trailed in our wake. From the beginning I had buried my face in the fold of my arms, and I only felt the great sheets of dawu (seaweed) sweeping over my back as we passed on into the deep. We had been going for some time, when I ventured to take a peek at our position. It was like a blank, but it was certainly clear that dawn was upon us. The yek-men were still unaware of my presence. To make certain that they did not see me, even in daylight, I shifted from my cramped position and moved close to the master-yek. My knees were touching his back only slightly when he uttered an expression of pain:

" 'Hu, anatl-seen (a sneaker) pressed on my back,' said he. (Hu is an expression of sharp pain which is used to this day.) Again I moved up still closer and pressed my knees harder. To my surprise, the evil yek began to cry out from the pain, and I experienced a feeling of delight in being in a

position to hurt the yek who was so heartless in taking away even the hide of his victim. I made up my mind to hurt him more. Bracing myself against the thwart, I pressed him with all my strength, and the merciless old yek emitted an expression of great pain and began to call for help:

" 'A-gana (an expression of ceaseless pain which also has become general), 'paddle on comrades, paddle with all your might,' pleaded he. Only when I became tired out did I allow Keyid some rest; then I renewed my pressing with even more vigor. By now Keyid was yelling to all the yek known to him for help, but my own potent yek were then within my call ready to ward off any interference. 'Make haste, good comrades, and have faith in the yek of the cloud-screen of my domain to drive off the cause of this pain.'

"Presently black clouds appeared. They rolled together into a great mass, and at last formed themselves into a monster bending down upon our course. As the canoe passed beneath it, the claws of the monster began to open in readiness to seize, and the great beak was so close that the foul breath tore up the surrounding water in great agitation. Before fear entered me I uttered a silent prayer: 'Of thee have I dreamed, great power, be thou my potent yek.' Thus, the first antagonist calmed down its wrath and hovered into space. Once the danger was over, I continued to press my victim.

"After passing the first obstacle, we were forestalled by other forms of powers of the deep. And Keyid urged on his men: 'Make haste good comrades, make haste, the Falls-into-abyss should flow forth to drive off the cause of this pain.' After awhile there came to my ears a booming sound issuing forth from somewhere ahead. I listened . . . It was like a sound of a great drum sometimes sinking by the beating of the sea into a dull sound of a distant land-slide, and sometimes rising again to vibrate in our surroundings. At last it came to view, the great Falls to the Abyss. It seemed as though the great ocean itself was being poured forth from the summit of a high cliff and, falling away down into a darkened space, drew in with it all the surrounding water. Over this violent current we started to drift. I closed my eyes, and at that moment I began to feel the whirl. Once more, I uttered a silent prayer: 'Great Power, be thou my yek.' Another yek submitted and the great current stopped its flow.

"Now Keyid directed his men to make for Sey-eat, a part of the deep ocean where the great body of water was forced through a canyon-like formation in a terrific manner; the kind of water-way which exists only in the yek world. When we approached it, this great body of water was shot away into the far horizon in a rolling fashion. I thought then that no living creature could pass through this and survive to tell about it. Directly into the roll of water we were shot forth, and at the moment we were about to be engulfed by the angry water, I once again uttered my silent prayer: 'Be thou my potent yek, great power.' And through it the canoe passed unharmed.

“ ‘Paddle on, comrades, and make haste. Maybe the yek in the Falling Promontory of my domain will come to my aid.’ There came a crashing sound. At first it was a sound like the falling of a great tree, but as we came near the sound gradually increased to one like the clashings of wings of the great Hetl (Thunder). And there was the Moving Promontory. It appeared as if the whole peninsula was rising out of the ocean and was being lifted high enough to see the thither side through the opening in the under-side. As this was being lifted, all the surrounding water rushed in to flood the vacated space and then, falling, pushed this aside into mountainlike rolls. Indeed, it looked like the end of me this time, for there was no other way but to go under. Over the rush of the sucking-in of the water our canoe was carried forth. I mustered courage and repeated my silent prayer, and the great body of land hesitated in making its fall until we passed through in safety.

“ ‘Paddle on, good comrades, and make haste. Maybe the yek that guard the landing of my domain will come to my aid.’ When we arrived at the approach to the domain of Keyid, the water of the bay made a move to receive us. We were about to be spilled into the whirling sea when I uttered my last silent prayer: ‘Be thou my yek.’ And then with violent speed our canoe was carried partly through the air and thrust land-ward from breaker to breaker until finally we were left dry upon the sandy landing.

“Keyid was very much exhausted from his imaginary illness and had to be lifted from the canoe. I followed him into his house and there, in order to have him always lie on his side, I stuck a small arrow-head, which I carried in my pouch, into his back. He did not make a loud outcry this time. I guess he was really sick then. I continued to apply my knees to the spine of the wicked yek. From the day of our arrival various powers were summoned to the bedside of Keyid, but they all failed to detect my presence, hence could not effect a relief for the stricken yek. I could not help having a feeling of disappointment, myself, for I was fatigued and weary of the experience.

“At last Keyid had to call to the great Shesoni-see (Daughter of Shesoni), the female yek of moral virtue. Now Shesoni-see was a benevolent yek and was known only for disciplining the moral virtue of all good women, and Keyid was a malevolent yek, one destined to destroy that which is good. These two yek were never known to be on friendly terms, but the female yek must have felt an opportunity in which to show the jinni of evil thought the power of good will. Hence the immediate response of the merciful yek.

“Three day-lights passed, and on the morning of the fourth day Shesoni-see appeared. When her arrival was announced I wondered what monster I was about to encounter. I was assured from the bearings of those yek about me that the adventure promised to be a most grave one. Rousing myself out of this diffident feeling, I decided to pull out the arrow-head from the back of my victim, and it is likely this act might have revealed to me

some other source of evil thought, but at that instant the door was thrown open:

“ ‘Shesoni-see cometh thither,’ announced the gigantic door-tender. There within the entrance appeared the female yek. At first I could not see her clear enough to know more than that she was tall and graceful, with loose long hair hung down her back like a mantle, but at the moment she detected my person the fog-like atmosphere which had enveiled her instantly disappeared, and I beheld a very beautiful face and form. In my excitement I must have twisted the arrow-head in the wound, and a loud outcry from Keyid interrupted. For a moment the beautiful yek hesitated and frowned when she looked at me. I was embarrassed and did not know what to do nor where to look. Once more that cowering feeling seized me and I could not avoid feeling the presence of a superior power. But gradually that frown on the handsome face faded away into a smile and I straightway recognized a mute expression of partiality. As if to herself that beautiful being spoke:

“ ‘Wasa ayu ka saku haek?’ ”

Thus spake Shesoni-see, in words that were not clearly understood, words that formed an expression which has long since become obsolete, and as near as we can surmise, from the nature of the meeting of the yek and the etet, the interpretation of this must be: “Indeed, a very bold novice, but how come thou beyond thy knowledge of life?” As an answer Ats-ha made a final twist of the arrow-head in the wound, and in a violent manner jerked it out, and as he moved away “Hu-we” (an expression of relief) issued from Keyid, and instantly he fell into a deep slumber. Together Shesoni-see and Ats-ha hovered into space.

One winter elapsed since Ats-ha had mysteriously disappeared from Ton-ani. No one knew what became of the young etet. It was then spring-time when a party, which was making its return from Dyea, sighted a great flock of birds flying in formation like a pole of smoke trailing skyward from the face of a high mountain. This multitude of birds was indeed a strange sight to the wayfarers. They had heard of such a scene being caused only by a supernatural power. Hence the travelers made a landing and investigated. They found that on the face of the mountain there was a cave, and at the entrance of this lay the prostrate form of Ats-ha, apparently lifeless, and this was what had attracted the attention of the birds. Two days later the long lost etet was brought back to his home and people, and, after he revived, Ats-ha told them about his adventure in yek land. To this day the cave, on the face of the mountain towering across the bay from a place now known as Skagway, bore his name: Ats-ha Ta-tugu (the cave of Ats-ha).

As long as Ats-ha lived and was true to his faith, Shesoni-see remained with him as his potent yek. For some years after his return from the yek world, Ats-ha maintained a desire to possess some object to remind him of

the benevolent yek, but nothing which would be appropriate to represent its feminine nature was thought of until Huakon-dusahu, "Stringling," a Kuek-adi maid, was married to an alien from the interior of our land. It was this young woman who embroidered with the quill of the porcupine a design representing moral virtue on this headdress of the ehets. To the misfortune of the Kuek-adi, it was with the life of Ats-ha that its spiritual guidance terminated, and no other ehets was born among them to assume the responsibility. Thence for a number of generations the emblem of Moral Virtue lay undisturbed, and no one touched it until chief "Chopping-tail" gave it a new name, and called it the "Yetl-shada," adding a carved piece of wood to represent the national emblem. This wooden piece soon fell to decay, and it was only in recent years that the present one was put on. Thus it has been long since the emblem of spiritual guidance and from that was changed to that of a tribal one. It is doubtful if the good spirit of Virtue would recognize this old piece if it were to view it once more.

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